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Fever Therapy in Ocular Manifestations of Syphilis*

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It is a well-known fact that syphilis is no respecter of any organ or tissue of the human body; that attribute applies equally to acquired and to congenital syphilis. We can then naturally assume that all structures of the eye and its adnexa may be the site of a leutic manifestation. The fact that syphilis affects the eye was recogized by Juan de Vigo as early as 1567.

Fever therapy for the cure of chronic ailments is not a new subject. The ancient Greek and Roman physicians observed that intercurrent fevers produce a favorable effect on chronic diseases. Hippocrates once said: "Give me the power to cause fever and I will cure all disease." Before the present era artificial fever therapy for the treatment of chronic ailments was produced by means of mineral hot baths and hot mud packs. In 1498 Lobos[1] concluded that in the later stages of syphilis the hot bath was the best form of treatment.

Through the centuries repeated references were made to the cases of general paresis that had been favorably affected by intercurrent fevers. However, fever therapy was not revived until 1918, when Wagner von Jauregg[2] introduced the successful treatment of general paresis by inoculation with tertian malarial parasites. In experimenting for means of producing fever he had also used killed typhoid bacilli, peptone, etc. Since that time the induction of fever has been accepted as an extremely valuable measure in the treatment of these cases.

The fact that the malarial paroxysms acted so favorably on paralytic patients stimulated many investigators to attempt to produce an hyperpyrexia by other means, and to apply them to the treatment of such cases. In 1919 Weichbroat and Johnel[3] demonstrated that rabbits with scrotal chancres recovered more rapidly when subjected to heat.

Shamberg and Hsien Wu Tseng[4] studied the effects of hot baths on syphilitic rabbits. They noted considerable improvement in the lesions of those so treated. These results led them to use hot baths in the treatment of syphilis of the central nervous system in human beings. These investigators found that the oral temperature could be elevated to 106° F. without producing any ill effects on the patients, and with apparent improvement of the clinical manifestations. After considerable experimental study on animals and human beings, King and Cocke[5] in 1930 introduced diathermy for the production of fever. This method proved to be equally effective in the treatment of paresis. The following year Black and Blakshare[6] reported favorable results with the hot bath treatment of syphilis of the central nervous system.

During the past ten years the literature

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on the subject has been voluminous, and many variations of the methods have been introduced. All had a common object, the induction of fever. Regardless of whether it was induced by an active infection, as with malarial parasites; by foreign protein, as in the use of typhoid vaccine; physically, by means of cabinets of various kinds, diathermy or hot water baths—all investigators reported good results from the treatment. Consequently, it must be accepted that the treatment of syphilis of the central nervous system by hyperpyrexia is successful. With this in mind, it was believed that since the method was effective in the treatment of latent syphilis of the central nervous system, it should also be useful in the treatment of chronic and congenital syphilitic manifestations of the eye.

At the time we instituted the use of fever therapy, fever cabinets and diathermy had not been introduced, consequently we first resorted to inoculation with malarial parasites. We were very fortunate in obtaining a strain that was easily controlled. In most cases it was possible to terminate the paroxysms within twenty-four hours.

Most of this work on ocular syphilis was done at the Children's Mercy Hospital and the Kansas City General Hospital. Neither of these institutions have fever cabinets, consequently for our fever treatment we used the tertian malarial parasites and the hot bath for the production of hyperpyrexia. Some of these cases received treatment by both methods.

In this series, patients having interstitial keratitis, optic neuritis and primary and secondary optic atrophy were treated. A few cases were treated with intravenous typhoid vaccine but the results were not as good as in those which we used the malaria or the hot bath, so only the technic of those two methods will be discussed

TREATMENT WITH TERTIAN MALARIAL PARASITES

It is best first to obtain a mild strain of tertian malarial parasites. Take five cc. from the patient having the malaria and inject it immediately into the vein of the patient to be treated. It may take a week or ten days before the patient shows any sign of having malaria. Once the paroxysms have started, allow the patient to have about ten paroxysms. In case the patient shows developing debility it might be necessary to terminate the malaria before he has had ten bouts. In severe cases of syphilis in which the patient did not suffer much debility we allowed the patient to have as many as fifteen bouts. If you have a mild strain, five grains of quinine by mouth per day for five days usually suffices to rid the patient completely of malaria. In fact, in all our cases the patient had no paroxysms after being given the quinine for one day.

TREATMENT WITH HOT BATH

The hot bath treatment should be given preferably in the evening. The patient is submerged in a tub of water of 99° F., with a poncho around the neck. Gradually add hot water until the temperature of the water is 105° F., and keep the patient submerged in this for ten minutes. This should elevate the sublingual temperature to about 102° or 103° F. After this, remove the patient from the bath and wrap in warm woolen blankets and allow the patient to cool off for thirty minutes to an hour, then thoroughly dry the skin and put to bed for the night. If the patient can tolerate this temperature, gradually increase the final temperature of the bath each treatment until a temperature of 115° has been reached. Also the time in the bath may be increased to fifteen minutes. This temperature and interval should elevate the sublingual temperature to 105° or 106° F. The treatments are given every other day unless there are contraindications or the patient does not tolerate them so frequently.

In our experience we had only two patients who could not tolerate these high temperatures. One patient would faint when the temperature of the water reached 105°. By the hot bath treatment nearly every patient gained weight while taking the baths and all experienced a sense of well being.

Patients treated by fever therapy should be given an intensive course of chemotherapy two months after termination of the fever therapy.

INTERSTITIAL KERATITIS TREATED BY HYPERPYREXIA

Twenty-eight cases of interstitial kera-

titis (most of which were very severe) were treated by the fever method. (Twenty-two cases were treated with malaria and six by the hot bath). In all but one case the photophobia, pain and inflammation subsided within two weeks. In three cases the symptoms disappeared and the eyes became white immediately after the first heat treatment. By no other form of treatmen have I seen eyes clear up as they did in these three. After the paroxysms or the fever from the hot baths were terminated some of the redness of the eyes returned. This recurrence was severe in only one case. In one case an effort to reinoculate the patient resulted in only one paroxysm. This patient was treated before we had begun the use of the hot baths. Had it been later in this series the hot bath would have been used. In this case apparently the first malarial infection was terminated too soon. One case that was treated early was perfectly quiet, with normal vision, in three months. One patient had had a chronic interstitial keratitis in both eyes for two years; he had been on an anti-leutic and local treatment all this time; vision was 10/200 in each eye. Two months after the termination of his bouts, his vision was R. 20/65: L. 20/100 and he was able to return to school. Another case of chronic interstitial keratitis of three years' duration, whose photophobia was so severe that it was impossible to obtain any vision, was given malaria and six months later had vision R. E. 20/40: L. E. 20/200.

Of the twenty cases treated by malaria or the hot bath, two cases had severe relapse. In one of these an effort to reinoculate succeeded in producing only one paroxysm, which did not alter the course of the disease. The other case made a very good recovery and vision returned to 20/20 in each eye within four months, but a year later he had a severe relapse. This patient was nineteen years old and he did not receive any anti-luetic treatment subsequent to his bath. There was a question whether this was a case of interstitial keratitis following acquired syphilis. Granted we had two poor results in twenty-eight cases; that would give seven per cent poor results. Considering the rapidity with which the symptoms and the salmon patches disappeared, this method of treatment of interstitial keratitis appears far superior to any previously used.

SYPHILITIC OPTIC NEURITIS

The first case treated by hyperpyrexia was a case of optic neuritis in a patient having an early tabo-paresis.

Mr. C. F. S., age fifty-two, first seen in 1925, had tabo-paresis and had been on mixed treatment. Early in 1926 he developed a paralysis of the right external rectus and a very marked optic neuritis, and his vision was rapidly failing. He was given tryparsamide treatment which did not alter the course of the disease and in December, 1927, his vision had been reduced to 20/200 in the right eye and light perception in the left. In January, 1928, he was inoculated with malaria. His mental condition improved markedly and also his gait. The deterioration of his vision was arrested so that he retained 20/200 in the right eye. When last seen in 1933 he still had 20/200 vision in that eye and was conducting his business as he had been before his trouble.

Another case of optic neuritis was in a child four years old. The optic discs were elevated 3D. with very marked peri-vascular infiltration of all the large vessels of both eyes. The swelling of the retina extended two disc-diameters into the retina. Vision was R. E. 20/30: L. E. 20/25. After having eleven paroxysms, six weeks after inoculation with malaria, the swelling and peri-vascular infiltration had completely disappeared and the vision was R. E. 20/20: L. E. 20/15. The only indication of the previous optic neuritis was a slight blurring of the disc margins of the right eye. This patient was observed from time of the inoculation, and the way the peri-vascular infiltration disappeared and the swelling diminished is only short of miraculous.

Other cases of optic neuritis were not so severe, consequently the results were not so striking, but all of them made perfect recoveries. That applies equally to the cases of secondary optic atrophy.

PRIMARY OPTIC ATROPHY

As is well known all our past methods of treating primary optic atrophy have given uniformly poor results. It is too

early to draw definite conclusions on the cases of primary optic atrophy treated by hyperpyrexia, because the late cases were so far advanced that we could not hope for much improvement or even completely to arrest the progress of the disease, while in the early cases we find the course of the disease to be variable in each individual, so that it is impossible to say this early just how permanent the improvement or the arrested condition will be. However, we have had some very definite improvements in some of the moderately early cases. Especially was this true in cases of congenital syphilis.

The following case illustrates the immediate results that may be obtained:

R. R., female, aged thirteen years, was admitted to the out-patient department of Children's Mercy Hospital, May 17, 1932. Vision R. E. = 20/50; L. E. = 20/100. Both nerve heads were extremely pale, with clear-cut margins. The right pupil measured three mm., the left four mm.; both pupils were almost fixed—only a very bright light would elicit the slightest reaction. The accommodation was good. Wassermann and Kline reactions were both four plus in blood and spinal fluid. The physical examination was negative.

The Wassermann reactions of both parents were four plus.

Diagnosis: Primary optic atrophy.

The patient was inoculated with malaria May 20, 1932, and was allowed to undergo ten paroxysms, with the maximum oral temperature ranging from 103.4° F. to 105.8° F., after which the malaria was terminated by quinine on June 22, 1932.

Convalescence was uneventful, and the vision gradually improved. At the last examination, October 13, 1933, the pupils and optic nerve heads were the same as on admission, but the vision was distinctly improved, that is, R. E. = 20/30; L. E. = 20/25.

Time does not permit detailed discussion of more cases.

DISCUSSION OF FEVER TREATMENT

The hot bath method for the production of hyperpyrexia in the treatment of chronic syphilitic manifestations of the eyes appears to be as efficacious as that of inoculation with malaria, consequently it simplifies greatly the procedure of fever therapy and minimizes the danger.

The fact that fever therapy immediately ameliorated the symptoms, narrowed the vessels in the cornea, and in most cases diminished the congestion and the perivascular infiltration so rapidly, brought up the question of the *modus operandi* that is responsible for the results. There is probably something besides merely increasing the metabolic process in these cases. According to Schamberg and Rule[7], the heat causes the thermic death of the treponema pallidum.

Bahr, Max, and Breutsch,[8] by histologic examination of the brain and spinal cord of patients who died of paresis before, during, and after malaria treatment, demonstrated that the beneficial action resulting from this treatment was due to the stimulation of the reticulo-endithelial system. They found the endithelial cells lining the blood vessels, the lymphocytes in the peri-vascular lymph spaces, and the stellate Kupffer cells were increased in number and size. These cells became intensely phagocytic in their action and destroyed the invading parasites by using them as food. The macrophages were frequently seen enveloping from one to three of the red cells containing the malarial parasites in various stages of disintegration. These investigators even demonstrated the increased activity of the macrophages in the test tube when the temperature was elevated.

It is assumed that the treponema pallidum, being a similar protozoan organism, is consumed in the same manner. Breutsch[9] believes that at normal temperature these phagocytic bodies are inactive, but they become voracious when the temperature is elevated. This explanation fits in admirably with the clinical course of heat therapy in the cases of interstitial keratitis. After the patient had had two or three hot baths or malaria paroxysms the conjunctiva became much whiter, and during the fever period the congestion was again greatly increased and was followed by a further blanching of the eyes. In several cases the eye became perfectly white after the third paroxysm and remained white as long as the reticulo-

endothelial system was repeatedly stimulated by the recurrent fever. After a week of freedom from fever, a slight congestion returned and remained for several weeks.

Syphilis in the acute stage is a stimulant of the reticulo-endothelial system, and many cases are on record in which there apparently was a spontaneous cure of this disease. In other words, the macrophages were sufficiently stimulated to destroy all the spirochetes. When a patient develops the parasyphilitic manifestations, or a child is born with congenital syphilis, the reticulo-endothelial system is not sufficiently stimulated, and only by stimulating it can one hope to effect any improvement. In congenital syphilis the reticulo-endothelial system is apparently immune to the stimulating effects of the spirochaeta pallida and it fails to mobilize the macrophages to overcome the infection. This would account for the unsatisfactory results obtained by the majority of other forms of treatment in inherited syphilis. In the opinion of the writer the intravenous treatment with arsenicals effects its benefit in these cases by its irritating effect on the endothelial lining of the blood vessels, thereby causing greater activity of the macrophages, which are cast off endothelial cells lining the blood vessels.

Having concluded that fever therapy is a treatment of choice, there remains the selection of a method of application. In hospitals in which many syphilitic patients are treated it is possible to preserve a malarial parasite of low virulence, so that it may be available at all times, but in smaller communities and in private practice this form of treatment is frequently impossible. Malaria is a very debilitating disease, and in patients with impaired physical vitality it should be used with caution. However, in such patients the hot water baths should also be used with caution, since one patient fainted in the tub. In this case it was impossible to obtain the desired hyperpyrexia, because the patient could not tolerate the necessary high temperature of the water for a sufficient length of time. The fact that the physician has the hot water treatment under his control at all times makes it the safer method for the fever treatment of the debilitated. This is not always true of malaria treatment, as irreparable damage might result before the physician would be able to terminate the paroxysms.

CONCLUSION

Fever therapy relieves the symptoms and obliterates the vessels in the cornea in interstitial keratitis more rapidly than any other form of treatment.

Syphilitic optic neuritis improves more rapidly by fever therapy than by any other form of treatment.

Apparently fever therapy arrests the progress of primary optic atrophy and in some cases even improves the vision and the fields, at least temporarily.

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Orchitis and Oophoritis Parotidea (Osler)

A. P. Ohlmacher, Royal Oak, Mich. (Journal A. M. A., June 13, 1936), cites an instance of orchitis parotidea without parotitis along with a case of primary oophoritis due to the virus of mumps. Rather definite similarities existed in the appearance of the involved ovary in the second case and that of the testicles exposed at operation by other workers. There would seem to be little doubt concerning the authenticity of this case of oophoritis parotidea. No other logical explanation for the appearance of the ovary, especially in the light of subsequent developments, can be readily advanced. A specimen for microscopic study was not obtained. The whole subsequent clinical picture, including the general physical condition of the patient, the chronological sequence of events leading to the development and subsidence of the parotid involvement and the physical characteristics of the salivary protuberances was definitely not that of the suppurative post-operative type of parotitis. The author is convinced that the exposure and manipulation of the offending ovary were important factors in the prompt development and full blown picture assumed by the parotitis. Whether without operation the parotitis would have remained unsullied and the case run its course as one of the oophoritis parotidea without parotitis is idle speculation. It is probable that this excessively unusual pathologic process will always present enough similarity to acute appendicitis to suggest operative intervention strongly, even granting that watchful waiting and astute differential diagnostic efforts would surely be rewarded by cognizance of the true state of affairs.

The Problem of Treatment of Cancer of the Breast*

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In spite of the easy accessibility of the primary lesion to various forms of therapy, cancer of the breast still furnishes one of the most discouraging chapters in the treatment of malignancy. The recognition of this fact first stimulated the surgeon and later the radiologist to improve their methods of attack. But as one surveys the field, it seems quite evident that there has been too much haphazard effort, too little application of logical reasoning and too little cooperation in combating this disease.

The principles of the radical mastectomy were formulated following a recognition of the tendency to wide dissemination of the disease along the lymphatic channels. If the surgeon extended the boundaries of his operative field as far as possible, he obviously had a better chance to remove all the disease than if the field were restricted. Unfortunately in a large percentage of cases, the radical operation has proved to be inadequate. In other words, good surgery reached the limits of its accomplishment some years ago leaving much still to be desired.

It was quite natural after noting the beneficial effects of radiation on malignancy that such therapy should be turned to as a means of improving the results of surgery. However, in spite of the obvious palliation usually obtained in recurrent carcinoma of the breast, this post-operative "shot in the dark" proved rather disappointing in its contribution. A few years ago after a statistical study of cases without and with post-operative radiation, Greenough was unable to demonstrate any improvement of results, and Lee's New York Hospital studies revealed little for the radiologist to brag about. On the other hand, Pfahler, who at this time was following somewhat the same methods of radiation in vogue today, was reporting such an improvement in results over surgery alone that many questioned his veracity. In the light of present day knowledge I think it is only fair to frankly admit he had been pointing the way to better radiotherapy. More recently Portmann[1] and others[2] have shown definite improvement in results from post-operative radiation over surgery alone.

One must bear in mind that radiation is still in its infancy and that there are many problems yet to solve. The results of today are decidedly better than those of yesterday and we have every reason to expect that those of tomorrow will excel today's. During the past two or three years the general acceptance of the principle of the single protracted intensive treatment has marked a big advance. We now know that many cases of cancer in different parts of the body previously considered hopeless by any method of therapy can be cured. Quite naturally we turn our attention to cancer of the breast with new hope and courage.

Perhaps it may clarify our reasoning somewhat if we look into the rationale back of post-operative radiation. Briefly stated once again, the surgeon by means of the radical mastectomy attempts to reach beyond the furthest boundaries of the malignancy. If he succeeds in getting beyond the lymphatic extensions, a cure is certain. If he does not, then obvious recurrence must take place unless some other agency can reach further than the knife and finish the destruction. No valid reason can be proposed for post-operative radiation other than the hope that it will destroy or retard the growth of cancer cells which have spread beyond the operative field. It is simply a further extension of the outposts of attack such as has marked the progress of surgery in this field.

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Originally the surgeon occupied his attention with the local growth and then later gradually extended his field of operation. Unfortunately there has continued a tendency even up to this day to fix the attention entirely too much on this local tumor. It was long ago discovered that removal of this primary growth had no retarding, but rather if anything, a stimulating effect on its extension. In other words, as regards the cure of the cancer, the local growth pales into insignificance in relation to its extensions. Complete removal of the breast or even the radical mastectomy is necessarily of minor consideration when the cancer has already spread beyond the operative field. Logical reasoning demands that we first should turn our attention to the possible outlying lymphatic extensions before they have a chance to spread farther. If we can destroy these, the problem is solved, as the central portions of the tumor can easily be taken care of.

If this viewpoint is correct, then the treatment of cancer of the breast should primarily be a radiological rather than a surgical problem. The majority of surgeons will doubtless be inclined to ask some pertinent questions before relinquishing their long time domination of this field. I shall therefore endeavor to anticipate some of these interrogations.

A few moments ago I spoke of post-operative radiation as a "shot in the dark." I was not trying to suggest that pre-operative radiation would not in part be the same thing. There is no tell-tale evidence of the permeation of the growth along the lymphatic channels, apart from axillary involvement, save that which indicates the chances of complete eradication are probably gone. We cannot therefore with any certainty determine where we should establish the boundaries of the area to be radiated. All we can do is to make it as extensive as seems feasible, judging from the location of the primary tumor and its obvious metastases, our past experience and our knowledge of the usual channels of infiltration. This area will, of course, be much larger than that covered by the most radical operation.

But you will ask, can the radiation actually destroy the malignancy and in particular the outlying portions of it? This is answered very positively in the affirmative by the marked increase in percentage of five-year cures now being reported from various centers as a result of post-operative radiation. Pfahler[3] has recently shown that in his experience surgery followed by radiation has doubled the number of five-year cures over that of surgery alone when there has been involvement of the axillary lymph nodes. In cases of poor operable risks or where surgery has been refused, Pfahler and Adair[4] have both obtained at least as high a percentage of five-year cures from radiation alone as has been brought about by surgery alone in the best clinics. Wintz's[5] three-year cures with roentgentherapy alone are considerably better than the three-year surgical cures taken from the world literature. Allow me to emphasize once again that considerable water has gone over the dam in the way of improved radiation since those cases were treated from which the above statistics were obtained.

In considering the changes brought about by radiation one must always bear in mind that the lethal effect upon the cancer cells is not only due to direct action, but also to the reaction produced in the normal tissue which makes up the cancer bed. When there is a large mass of cancer cells with little normal tissue remaining as may be the case in the primary breast tumor or in the metastatic axillary lymph nodes, then this latter component necessarily plays a smaller role. This in part explains why viable cancer cells may still remain in such locations even after very heavy radiation. On the other hand but a short distance from the primary tumor, cancer cells are present only in small groups. Handley[6] has clearly demonstrated them growing in a small cord in the lymph vessels. He has also shown fairly conclusively that sufficient reaction is produced in the tissues oftimes to destroy the malignant cells. Of course this destruction is usually back of the growing point of the invading cells. But, at any rate, we find here only small groups of cancer cells in the midst of normal tissue which without aid shows considerable reactivity to the cancer process. It is only reasonable to assume that by means of radiation this reaction can be built up to the point where in the majority of cases

all of the malignant cells will be killed throughout the area radiated with the exception of those regions where they occur in large masses. These may then be removed surgically.

Occasionally when the question of preoperative radiation is considered, surgeons express fear concerning what might happen as a result of the delaying of the operation. In other words, they have a hard job to see very far beyond the primary tumor. If a thorough course of radiation is given, with the necessary interim of six to eight weeks before surgery, they need have no fear of anything but a regression of the tumor. The amount of the interval between radiation and surgery depends, of course, upon the severity of the radiation reaction. If the radiation is inadequate, as unfortunately is very frequently the case, the growth should at least be so retarded that nothing is lost by the very short delay necessary before operation. We trust that in due course of time physicians dealing with cancer will generally acquire some conception of what constitutes adequate radiation and will demand it.

Another very pertinent question can be raised as regards diagnosis. Should we take biopsy specimens? If the lesion in the breast is obviously a cancer, as is true in a large percentage of the cases presenting themselves for treatment, then removal of a biopsy specimen cannot contribute anything to the patient's interest, but instead tends to delay institution of treatment and perhaps make conditions a little less favorable for it. On the other hand, if there is still doubt after transillumination of the breast and a skiographic examination,[7] a biopsy should be resorted to and radiation treatment instituted as soon as possible while studying the microscopic sections, and continued if the growth proves to be malignant. The area of probable lymphatic extension would, of course, be treated first and after a few days the breast area could also be included. In fact, if mastectomy is to be performed, it is probably immaterial whether or not this area is treated. One might even go a step farther and conclude that if the lesion was so early as to require a biopsy for diagnosis, the complete operation might be carried out immediately and followed by radiation.

Following the preliminary course of radiation therapy, what is to be done with the primary tumor or perhaps to axillary metastases? Shall the treatment be made wholly a radiological problem, as some advocate, or should surgery still have a place? That the primary tumor can be thoroughly destroyed by radiation, there is no doubt. If the growth is too resistant to be eradicated by roentgen therapy alone, then interstitial radiation by means of radium needles imbedded throughout the breast can finish the work. Such use of radium, however, constitutes a rather expensive procedure. Except perhaps from the cosmetic standpoint I fail to see that it has any special advantages over good surgery. The axilla on the other hand furnishes a more difficult problem for radium treatment. The proximity of important blood vessels and nerves makes the effective application of radium needles a decidedly ticklish problem. I doubt very much if the axilla can be uniformly, effectively and safely radiated by such means. Accordingly, my personal feeling is that in operable cases a radical mastectomy should be performed as soon as possible following the preliminary roentgen therapy. Doubtless the operator need not be quite as radical as formerly in his removal of the deep lymphatics, but there are too many cases[8] where the tumor infiltrates the muscle to suggest that the pectorals may be saved.

Since radiation therapy alone can give such a good account of itself, there is much less reason now than formerly for operating on elderly people, those who are poor operative risks or who offer little or no hope of a cure. As a general rule cancer progresses slowly in old people, often so slowly that they can carry an untreated cancer for years without much discomfort. Certainly only occasionally is there justification for surgery, when with or without radiation a very large percentage of them will die of some condition other than cancer.

In speaking of cases too far advanced to be operable we are at once put to the pains of setting up certain boundary lines. If there is no evidence of invasion of the deeper structures, but there is extensive involvement of the sub-cutaneous tissue beyond the breast (cancer en cuirasse) or

partial fixation of the breast to the chest wall, I believe no one will argue in favor of surgery's playing any major part in the treatment. In this same category is also a very active type of breast cancer in which an inflammatory reaction develops. Lee[9] reports a series of twenty-six cases with no cures. The appearance of this reaction evidently indicates we have a rapidly spreading growth which has already gone beyond the bounds of probable cure. At any rate, they seem to be made worse by surgery and according to our present knowledge should be treated by radiation alone. As to how the extent of lymphatic metastases should govern our method of procedure there will of course be some difference of opinion. It is, we believe, generally accepted that involvement of an extensive chain of lymph nodes indicates a rapid spread of the disease with said lymph nodes offering little hindrance to its advance. One may also assert that in most cases at least the supraclavicular lymph nodes are invaded secondarily to the axillary nodes and the cervical secondarily to the supraclavicular. If the disease has spread as far as the cervical lymph nodes, one can hardly conclude otherwise than that cure is impossible and that any major surgery is contraindicated. Some authors[10] claim that no permanent cures are ever obtained if the disease has spread only as far as the supraclavicular nodes. Bloodgood[11] in a review of Halsted's cases found only ten per cent of five-year cures when the disease had reached the apical axillary glands, whereas it amounted to twenty-five per cent if it had not spread beyond the base glands. We should be able to determine definitely the point in this lymphatic spread at which the chance of cure vanishes. Certainly all cases beyond this point should be treated solely by radiation.

We have already pointed out the lessened need for surgery in elderly people. As we approach the younger ages in which cancer of the breast occurs, surgery again becomes a more and more questionable procedure. Below forty when the fires of metabolism burn very actively, cancer also grows quite rapidly. When the age of thirty is reached the hope of a cure is practically at the vanishing point. If cancer of the breast appears at this age or younger, the fight should probably be made entirely by the radiological method. The occurence of cancer during pregnancy or lactation does not affect our age figures as much as one would expect as Kilgore[12] has reported surgical cures of ten and thirteen years duration in two patients operated on at the age of thirty-three. These cases were taken from the records of Johns Hopkins Hospital. Lee,[13] however, in eleven cases under the age of forty had no cures, but one woman lived five years and ten months. Some have advocated sterilization of these younger women because in many cases marked palliation has seemed to result from it. This procedure at least merits serious consideration.

From what I have already said it is plainly evident that I feel the chief reliance should be placed on the roentgen ray for radiation therapy. By this method a reaction of fairly uniform intensity can be attained throughout the area to be treated at a not-prohibitive expense. Similar treatment can be given by large quantities of radium, but it is very expensive and there is no evidence that it is more potent. Under certain conditions radium needles can be used fairly effectively. A few moments ago I spoke of the problems connected with the use of radium needles in the axilla. I am sure it is much safer and more logical to attack it with external radiation. Much the same holds true for infiltrated areas of subcutaneous tissue surrounding the breast.

Perhaps some one may suggest that interstitial radiation can produce no appreciable effect on the lungs whereas radiation from external sources may cause a pneumonitis. It is true that in the latter case the lungs may receive a fairly heavy dose, if adequate treatment is given, while in the former, it is too small to even be considered. Due to this fear of lung damage many give all or part of the treatment by tangential radiation; that is, radiation directed at rather acute angles. In this way the lungs can be spared from excessive doses even though a strong reaction is produced in the chest wall.

Unfortunately many breast cases are being treated today by repeated series of radiations where the intensity of reaction is never high enough that there is any

chance whatever of destroying carcinoma cells. The most pathetic part of the picture is the fact that whatever chance there is of a cure is locked up in the first radiological and surgical effort. As early as 1924 in a paper read at Chicago Dr. Regaud of the Curie Institute said: "The observations on human cancers, treated by radiation, have revealed another most important conclusion; the progressive decrease in radiosusceptibility of the cancer cells treated by repeated non-sterilizing irradiations. These ineffective irradiations will finally bring a necrosis of the treated region. This well-established fact forces us to adopt the rule of the single protracted treatment in human cancer." To destroy carcinoma cells by radiation requires the equivalent of two or more erythema doses so that a marked reaction is produced throughout the cancer bed. Therefore, the area to be treated should be gradually carried up to as high a reaction as is possible without permanent damage by a continuous series of x-ray treatments lasting from four to six weeks. When the course is over or shortly thereafter there should be an intense erythema throughout the whole area. One of the most important things we have learned in the last few years is the high intensity of skin reaction which can be produced without untoward results provided we do not give beyond a certain amount each day. Of course, such reactions produce quite a little discomfort and more or less general malaise for a time, but patients are quite willing to endure it, if they feel by so doing, their chances of final cure are thereby improved. After this intense reaction (not burn) vanishes, the skin tends to peel off in large sheets leaving an epithelial surface which is not far from normal. If patients do not develop such a reaction they have been deprived, from a radiological standpoint, of some of their chances of a cure. In case a proper reaction has been produced preoperatively, there is no logic in further treatment shortly after the operation. In fact, such treatment would do more harm than good. Any future radiation should be entirely dependent on recurrences.

The field of cancer therapy probably embraces more special knowledge than any other branch of medicine. Those who treat cancer should have a very good grasp of the whole subject. We should hear less of surgical and radiological viewpoints. Instead, the cancer patient should be treated by the conscientious, cooperative efforts of those who are on the firing line of progress and who are versed in what constitutes good surgery and radiotherapy. As we approach this ideal, there is every reason to believe that cancer of the breast will no longer take the enormous toll of human lives that it does today.

Further studies by Adair (14), and published after this paper was written, show much poorer results in radiation treatment of cancer of the breast without operation than was evident at the time of his earlier paper (4). His present studies on the effects of pre-operative radiation will doubtless be very helpful in solving the most efficient way to treat this disease.

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Fracture of Neck of Femur

F. J. Gaenslen, Milwaukee (Journal A. M. A., July 11, 1936), believes that while encouraging reports of internal fixation of fractures of the neck of the femur are at hand from many authors, each developing his own technic, not enough time has elapsed to permit one to speak of end results. It appears likely, however, that end results will be reached earlier in those cases in which internal rather than external fixation is used, since conditions established by internal fixation are more or less comparable to those obtaining in the impacted cases. Complications and mishaps may be expected in any new procedure, and indeed many have been reported; but each such incident has been a lesson, often pointing the way to avoidance of danger.

VISCERAL INJURIES*

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The subject of injuries to the chest and abdominal cavities, sustained in automobile and industrial accidents, termed visceral, is entirely too large a subject to be covered in a paper to be read at a meeting such as this one. To illustrate: A few of the possibilities of injury to the abdomen are contusion, lacerations or rupture to the liver, gall bladder, pancreas, duodenum, any part of the small bowel, any part of the colon, the kidney, the spleen, the bladder, hematoma of the abdominal wall, retroperitoneal hematoma, laceration of the mesentery or the omentum, hematoma of the omentum, laceration or thrombosis of any of the intra-abdominal vessels, particularly the mesenteric vessels, damage to the cord of various kinds, etc.

Injuries to the thoracic viscera, of course, cover injuries to the pleura, to the lung, to the structures of the mediastinum, pericardium, or heart, itself; pneumothorax, hemothorax, hemo-pneumothorax, massive collapse of the lung, rupture of the diaphragm, pericardial mediastinal hemorrhage, and of course other complications, such as pneumonia and empyema, which may occur even weeks after the injury—these various injuries being caused in most instances by blows, punctures by foreign bodies, puncture by fractured ribs, and others. So it is manifestly impossible to attempt to deal with such a multitude of possibilities from the standpoint of symptoms, differential diagnosis and treatment. We shall attempt in this short paper to cover the subject only in a very general way, that is, we shall discuss the injured chest and abdomen, and not the specific injuries of the chest and abdomen.

Puncture wounds of the chest by some foreign object, if they produce serious wound of the heart or great vessels, are usually so quickly fatal that we are not called upon to treat them. If the injury is to the trachea, the extravasation of air in the tissues of the neck and face may be such as to cause sufficient pressure as to make death from asphyxiation a possibility. Such a case might be relieved by incision of the skin and fascia of the neck, or by tracheotomy.

Puncture wounds involving the pleura or lung may result in very few symptoms, or in grave symptoms—the latter usually being due to the formation of a pneumothorax, or hemothorax, or both. A sucking wound in the thoracic wall may greatly increase intra-thoracic pressure and such a wound should be, so soon as possible, cleansed and closed. A valve-like wound in the lung may result in such increased pressure as to endanger life. Such a condition can be relieved by aspiration of the air and blood, with the resulting inflation of the lung.

Puncture of the contents of the thoracic cavity by fractured ribs usually involves only the lung or the pleura, because that part of the chest wall over the mediastinum outside the sternum is mostly cartilage. The results are mostly the complication of intra-thoracic pressure from air or blood or both, and are relieved by the removal of the pressure by aspiration of the pleural contents, if the symptoms of pressure are severe enough to warrant it. Continuous hemorrhage in the chest cavity can, of course, necessitate entering the chest and ligating the bleeding vessel, which may be a vessel in the chest cavity, the internal mammary, or an intercostal vessel. Foreign bodies, if large, probably should be removed, because if allowed to remain, they may result in infection later. Large quantities of fluid or blood should not be allowed to remain in the chest because of the resulting displacement of the lung, adhesions, etc. Air in the chest cavity, if not under too much pressure, probably should not be removed because it will absorb and may be of considerable value in controlling hemorrhage.

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Blows to the chest wall, or crushing injuries may produce contusions or lacerations of any of the contained viscera, or may produce puncture wounds from the ends of fractured ribs. If we are dealing with a contusion only, our treatment will consist in general measures to relieve pain, control shock, and try to prevent such secondary manifestations as pneumonia. Lacerations and puncture wounds of the chest wall, due to this type of injury, of course, give rise to the same treatment as puncture wounds discussed before. Collapse of the lung, if attended by fluid or air in the pleura, is treated by aspiration of the foreign substance; and collapse of the lung without a wound to the lung or chest wall is, of course, treated by forced respiration, administration of carbon dioxide and oxygen.

In a general way, we can say that wounds to the chest, if not too severe to cause rapid death, the ones which get to the hospital, and which we see, should be treated conservatively. The injured person should be kept under close observation. He should be carefully examined by inspection, percussion, auscultation, and the x-ray. He should be made as comfortable as possible by change of position, by strapping, and drugs. If he is in shock, this should be combated. If he develops cyanosis and dyspnoea, pallor, thready pulse, we should suspect hemorrhage and intrathoracic pressure—in other words, mechanical interference with his respiratory and circulatory functions. Much can be done, of course, to relieve this condition. Occasionally opening of the chest cavity may be indicated. Withdrawal of fluid or blood, if in large quantities, is indicated, but not immediately in the absence of pressure symptoms. In the cases that do not require interference, it must be remembered that later, even weeks later, the formation of pus some place in the chest cavity may require intervention. Cutaneous emphysema is a rather common chest condition where the ribs are fractured, and is usually not serious. The patient who is brought to the hospital, apparently not very seriously injured should be carefully watched anyway because some hours later, as a result of hemorrhage or air pressure, his condition may be grave. It has been surprising to me how much damage could be done to the contents of the chest cavity with survival of the patient, with no ultimate ill effects.

To summarize: Treat the chest injuries expectantly. Get all the information you can by physical examination, x-ray, etc. Keep them under close observation, and meet the symptoms as they develop.

Wounds of the abdominal aorta and larger vessels of the abdomen are not liable to require treatment. They are apt to be too rapidly fatal. Every punctured wound of the abdominal wall, in my opinion, should be explored—that is, an incision should be carried into the abdominal wall as far as the wound extends and if the peritoneum is perforated, the abdominal cavity should be explored if the patient's condition is such as to warrant it at all. If his condition is not such as to warrant it, an attempt should be made at once to improve his condition by intravenous glucose, acacia, or blood, if it can be obtained, and the wound then explored. If a foreign body has perforated the abdominal wall, there is a very strong likelihood that it may have lacerated or perforated something in the abdominal cavity, and if there is hemorrhage, it is imperative that it should be stopped as soon as possible, and if there is perforation of a hollow viscus it should be repaired before there is much leakage.

In my opinion, in these cases the chief indication is to explore the wound as soon as possible whether or not the patient has any other symptoms of serious injury or not. Other injuries in which there is evidence of a possibility of injury to the abdominal contents should all be regarded as serious and kept under close observation. The problem is often complicated by the fact that there are often other injuries of sufficient severity as to cause shock or to cause hemorrhage, and other injuries, such as injuries to the back or spine may be attended by abdominal pain and abdominal rigidity. If there is no evidence of any other injury of much consequence, the problem is simplified, but if the patient has two or three broken bones, as for instance, a fracture of the femur, which could produce a good deal of "knock-out," and at the same time has evidence of some injury about the abdomen, the situation is complicated. Generally speaking, such a

patient should be rendered comfortable, but not too comfortable—that is, not comfortable enough to cover any symptoms, and thoroughly inspected and palpated for evidence of injury all over the body. A record should be made of his pulse and blood pressure, general appearance, amount of abdominal tenderness, amount of rigidity, its location, and areas of dullness. A specimen of urine should be obtained and examined for blood. If no urine is obtained, or in meager quantities, the bladder should be investigated. If the patient is in good general condition, he should be put to bed, given nothing by mouth or rectum, and watched—particularly his pulse, blood pressure, general appearance, and his abdomen for tenderness, distention, and rigidity. If after a few hours his general condition is worse, and this is attended by the appearance of definite symptoms of something wrong in the abdomen, his condition should be improved as much as possible and the abdomen opened without much delay. If on the other hand his general condition is poor when he is admitted to the hospital and he is in shock, every effort should be made to improve his condition. If this is successful, his pulse becomes better, his blood pressure more normal, this patient should be again watched. If he is not seriously hurt, as a rule, once over the shock, he will continue to improve and the evidence of abdominal injury will not become more marked. If, however, the evidence of intra-abdominal injury becomes more definite and his blood pressure steadily drops, a hemorrhage should be suspected and his abdomen explored.

Again, if the patient is brought into the hospital in serious condition, is pulseless, and his blood pressure cannot be improved by appropriate treatment, and if there is evidence of abdominal injury, and the case is probably quite desperate, he should be given the benefit of an exploration, but if possible, several donors should be procured and he should be given blood before and during the surgical procedure. We have had a good many of these cases who have been bleeding freely from a lacerated liver or ruptured spleen, or lacerated mesenteric vessel, who were in very much better condition immediately following the surgery than when the operation was begun, this being due to the fact that we have several times been able to recover as much as two quarts of blood from the peritoneal cavity and return it to the patient's circulation.

A quite typical case which illustrates this is a boy who was caught between an elevator platform and the floor, and badly squeezed. He was brought to the hospital in a good deal of shock, and of course, in a good deal of pain, with much tenderness about the abdomen. Of course, these latter symptoms did not amount to very much, as the boy had enough injury to the abdominal wall to cause him both pain and tenderness. He was given some glucose intravenously, made comfortable, and his condition improved very much, but after about an hour his blood pressure began to steadily drop, he became pale, a little restless, abdominal rigidity was general, and we thought more pronounced, and we thought possibly he had some dullness in the flanks. In the meantime we found some donors and about this time decided to open his abdomen, started blood transfusion before the anesthetic was started and continued it during the operation. He had a very deep laceration of the liver and the peritoneal cavity was pretty well filled with blood, a large part of which was recovered and returned to his circulation. He left the operating room in much better condition than when he went in, and in much better condition than at any time after he had entered the hospital, and made a quite uneventful recovery.

Almost all these cases of hemorrhage in the abdominal cavity can be operated safely enough if plenty of blood for transfusion can be obtained; and where there is no perforation of the stomach, intestines, or bladder, and no contamination of the peritoneal cavity, the blood from the peritoneal cavity can be mopped out, filtered, citrated, and returned to the circulation quite easily and with much benefit. We think that most wounds of the liver can be controlled by suturing, or by suture and pack, but a damaged spleen is liable to have to be removed. Hemorrhage from the mesenteric arteries can be controlled easily unless it is one of the large trunks, in which case ligation may interfere with the circulation of the intestine. In other words, the case with hemorrhage in the

abdominal cavity, which is still alive, or in any kind of condition at all when he enters the hospital, can probably be handled.

If there is evidence of laceration of the kidney, I think the case should be treated conservatively because the majority of them control themselves. However, I have had two cases with injured kidneys which bled so profusely that complete removal of the kidney was required to control the hemorrhage. If there is any evidence of rupture of the bladder, of course, delay means a severe peritonitis and the patient should be operated at once, or certainly so soon as his condition will warrant it. Injuries to the lower abdomen, especially where the bones of the pelvis are injured, should be investigated carefully for bladder injury. A ruptured bladder is quite easy to demonstrate.

Rupture of any part of the intestinal tract, of course, is serious because if allowed to go any time, it means extensive soiling of the peritoneal cavity and possibly a fatal peritonitis. If there is intra-abdominal hemorrhage, of course, one will after a short time become suspicious of this and may find the injured viscus at the same time he looks for the source of hemorrhage; but if there is little hemorrhage or no hemorrhage, it may be quite difficult to be sure of the condition early. These cases may not have shock and their general condition may be good, but if the pain becomes more severe, if the rigidity becomes more pronounced, and if the abdomen begins to distend a little after not too many hours, it is probably safer to investigate. A perforated bowel or stomach is not a very serious thing if taken care of the first few hours, and it is probably better in these cases to weigh the chances of a useless exploratory against the chances of a fatal peritonitis. Of course, many of these cases which are quite typical can be described more graphically, but unfortunately, many of them are not typical, and I think it is quite difficult, maybe impossible, to put in words just what one sees in these cases, but I am quite convinced that a surgeon who has seen a great many of such cases over a period of years is not liable to do many explorations without finding something. What we call a "hunch" is most often, I think, based upon a subconscious impression, and consequently is quite likely to be accurate.

Now, in conclusion, we have injuries to the contents of the chest and to the contents of the abdomen which are so rapidly fatal that we have not much chance to do anything for them, but those cases which get into the hospital should be considered as having a fair chance of recovery, even though seriously hurt. All of them should be very carefully examined at once. Immediate steps should be taken to improve their general condition. In both, the possibility of severe hemorrhage should be considered and its liklihood established as soon as possible. In the chest injuries, however, in the case of hemorrhage the patient should be treated probably more expectantly than in the abdominal injuries. The hemorrhage in the chest is more liable to control itself than the severe abdominal hemorrhage. The greatest danger in chest injuries is, of course, pressure, which interferes with respiration. In the absence of severe intra-thoracic pressure, it is better to let the injured man alone and watch him carefully. On the other hand, in abdominal injuries, the two great dangers are hemorrhage and a contamination of the peritoneal cavity which will later lead to peritonitis. Neither of these conditions can be temporized with and very strong suspicion of the presence of either is cause for interference without delay.

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DISCUSSION

Dr. Von Wedel, Oklahoma City: Dr. Hudson sent this paper down to me and commented that it wasn't very good. I beg to differ. I think it is a very thoughtful paper. It is so large a subject that I don't intend to discuss it as a whole but there are some interesting phases that I want to bring out. Some years ago, eight or nine or ten years ago, when people first began to drive rather fast, I saw my first heart injury. At that time I did not know, did not think what it was. In the meantime I have seen two or three cases of this injury, in fact several of them, and have followed up some of them with

electrocardiograms and had a great deal of pleasure in listening to a paper on heart injuries at New Orleans at the Southern Medical two or three years ago. I had one case where the man was thrown probably against the wheel and was bent over. He was in extreme shock when he was brought in. There was no other evidence except low blood pressure. He was in extreme shock; his temperature was 92, there was profuse perspiration and all the typical picture of cardiac thrombosis. An electrocardiogram was done and followed up by repeated electrocardiograms, and this man gave the picture of coronary thrombosis. He was a young man. I believe some of these people who have been forcibly thrown against some object, or any other direct blow will cause the same conditions in the muscle of the wall of the heart such as we see in the leg or arm or back or any other place, and there will be hemorrhage directly into the wall of the heart and you have the typical symptoms of coronary thrombosis. The second thing I want to mention is some of these chest injuries. Dr. Hudson mentioned the question of hemorrhage. Hemorrhages of the chest or hemorrhages from injuries to the chest, occur from the internal mammary artery. These hemorrhages should be treated just exactly like you treat a hemorrhage from tuberculosis or anything else. I think in the beginning it should be aspirated and artificial pneumothorax instituted, squeezing the lung tightly into the chest. You can control your hemorrhage of the lung by artificial pneumothorax and can do it without shock to the patient. Then we have the cases of lung injury in which the chest cavity fills up and we have the embarrassment of respiration, cyanosis, and cardiac embarrassment from hemorrhage that is not serious enough that you need artificial pneumothorax, and here the patient can be treated with continuous suction, needling the chest and using continuous suction. There is one other phase of chest injuries I want to speak of, and that is emphysema. We have all seen some very serious cases of emhysema in which the lung is torn or the bronchus torn, sufficiently that the constant pumping action of the lungs fills the tissue of the mediastinum and these cases are often fatal. These cases likewise can be treated with decompression, using pneumothorax, and your cyanosis and your cardiac embarrassment will cease. There is one other phase of this paper which I should like to discuss and that is injuries about the pelvis. I think in every suspected case of any injury in the lower abdomen, the patient should be promptly catheterized, because there is no more radically fatal peritonitis than peritonitis resulting from a ruptured bladder. We issue an order to catheterize all these patients promptly. If there is any suspicious blood or if we are not able to obtain urine we are very prone to drain the bladder. Most of these bladder ruptures are not intraperitoneal but are extra vesicular, and you have an infection in the perivesicular tissue and rapid slough. Now in these cases we do bladder drainage, and if the patient is in shock, instead of going ahead and opening the bladder we put in a catheter. All we want is the rapid drainage of the bladder.

Question: If the blood is sterile in the abdominal cavity, why not just leave it in the abdominal cavity and let it be absorbed?

Dr. Hudson: I don't think Dr. Von Wedel should have been interrupted, because if you had let him alone, between us we would have had this subject covered. He was going to talk about traumatic appendicitis. Do you believe in it or not?

Dr. Von Wedel: I heard of a case where a man was struck in the mouth with an electric light bulb and two weeks later he was operated for appendicitis and a piece of glass taken from his appendix.

Dr. Hudson: Answering this question, we believe that blood in the peritoneal cavity doesn't do the abdomen much good. It is quite true that the patient in time will absorb the serum, but about all he can get from the solid part of the blood is a lot of adhesions around it. The intestines will adhere around a blood clot about as rapidly as they will around pus. When you get it back in circulation you get it in the circulation right now, and it is the patient's own blood and you never get any kick, and it is easy to do.

DIGITALIS—ITS USES AND ABUSES*

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In consideration of this drug, digitalis, and its associated glucosides, we humbly present for your consideration the following facts and observations. In doing so, we realize that we are treading on dangerous ground. We realize that for the past two decades the proper use of this drug has been the bone of contention among physicians more than any other drug in our pharmacopeia. Many of you no doubt have had a great deal more experience with this drug, and can probably use it to greater advantage than the writers of this paper. Each of you who are doing general practice no doubt have your own routine which you have found from experience will give you the best results. Far be it to try to alter this method. You have learned through experience, which is the best teacher, the routine which in your hand will give the best results, and the signs and symptoms of over-dose. The scalpel in the hands of a surgeon becomes only a knife in the hands of a layman.

The story of digitalis, its empirical use by the "Old Lady of Shropshire," its discovery by William Weathering in 1776, and his memorable treatise, "Account of the Fox Glove," published in 1785, in which he warned against the abuses of this drug at that early date in medical practice, is well known to us all. Since the time of the discovery, this drug has been studied constantly in laboratories and in practice, until now we have amassed such a volume of facts that one is bewildered.

The opinion of the profession seems to be divided from the ultra-conservative, where digitalis is rarely, if ever, used, to the other extreme, where digitalis is used in almost every condition where there is the slightest indication of tachycardia or the assumption that tachycardia will develop.

As in the use of practically all drugs, there is a therapeutic effect, counterbalanced to some extent by a deleterious effect; that is, for the function of every organ that is benefited usually the function of some other organ is impaired, and whether to use the drug or not depends on whether this improvement will more than counterbalance the ill effect caused elsewhere.

In general practice there are three drugs that are used more than all the other drugs put together: the opiates, classed as one drug; the salicylates, including aspirin; and digitalis. Of these three, digitalis is no doubt the most widely used individual drug, and perhaps the most widely misused cardiac drug.

There is an old Chinese legend which tells the story that when a wife wished to dispose of her husband she would put into his tea the leaves of a plant similar to digitalis. This, over a period of time, would cause cardiac failure and the husband's demise. The reason for this is found in the experiments which many of us have performed on laboratory animals during our college course.

In the present standardization of digitalis, two animals are used, the frog and the cat, one a cold blooded animal, the other warm blooded. In using these animals for the standardization of the drug, it is realized that their physiological functions are much different from that of man, especially the diseased human being, but when the results of this standardization are applied to the practical use on the pathological heart, we find the results to be close enough that, for practical purposes, the present standardization has proved satisfactory.

Since digitalis became such a common drug, there has been a specialization in the cultivation of the fox glove, attempting to produce a plant with a higher content of the alkaloid of digitalis. A study has been made of the part of this plant

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which produces digitalis in the most concentrated form, and the time of year at which the concentration of digitalis is the greatest. This study to a large extent has fallen into the hands of the wholesale pharmaceutical houses.

In speaking of digitalis, we realize the fact that the products of the digitalis leaves are divided into several glucosides, some of these glucosides having slightly different effects from others. We also know that these glucosides, when isolated, do not remain very stable.

In the administration of digitalis the use of the aqueous infusion has practically been discontinued as impractical, because the infusion deteriorates very rapidly. Tincture of digitalis at the present time is very satisfactory. Some products have been tested and found to be full strength at the end of seven years. At the present time there is a swing of opinion toward the use of the dried leaves dispensed either in the capsule or in tablet form, with unit standardization.

Methods of administration are: Intravenous—in this comparatively large doses should be used as the drug is absorbed as it passes the endocardium; very little of it passes through peripheral circulation. It seems to be changed into an inactive glucoside. Subcutaneous administration of digitalis is to be preferred where rapid results are desired. There is evidence to show that after two or three hours the heart will show the effects of the digitalis thus administered. In giving digitalis *per* rectum we also find this to be true, and do not seem to have the gastric disturbances that occasionally occur when the drug is given *per* orum. However, digitalis *per* orum, as long as there are no gastric disturbances, seems to be the method of choice.

Digitalis is primarily a cardiac drug. Following administration, we find that the myocardium becomes saturated with the drug to a greater extent than any of the other organs of the body. It has been proved experimentally that this drug seems to become fixed with the tissues of the myocardium, and it is impossible to wash the drug out. The only way the drug is freed from the myocardium is by the action of the muscle over a period of time; so it is that as repeated doses of the drug are given we obtain the accumulative action of digitalis. In this regard, we find the greatest amount of digitalis fixed in the heart where myocardial hypertrophy is present, and so this type of heart gets more effect from a given dose. It has also been shown that digitalis is more effective in hearts of older people. This is due to the varying water content of the heart muscle at different ages and the hydrophilic effect of digitalis.

Digitalis acts on the heart, first, to increase the tone; second, increase contractility; third, increase irritability; fourth, increase the refractory period; and fifth, decrease the conduction time. Also, by reflex action arising from the heart and other viscera, the vagus is stimulated with the resulting slowing of the rhythm, and again inhibition of conduction. Of all cardiac conditions, it is in auricular fibrillation that digitalis gives the most striking results. The clinical improvement is due largely to the impairment of conduction and the increase of ventricular tone. In this regard, it is rather surprising that digitalis itself, in toxic doses, may produce auricular fibrillation. It has also been demonstrated that digitalis is capable of causing constriction of the coronary vessels; clinical observation bears this out in that patients under digitalis therapy will occasionally suffer anginal pains. This drug has very little effect on the rate of the apparently normal heart. If anything, it tends to decrease the volume output, due to the increase in tone.

The first electrocardiographic change showing the demonstrable effects of digitalis is in the lengthening of the interval between contractions so as to give the venous blood sufficient time to enter the auricles, and the cardiac minute output is increased. With the slower pulse, the heart fills more completely during the diastolic pauses, and its output is materially increased.

In the administration of digitalis it is frequently desirable to completely digitalize a patient. Overdosage of digitalis produces a series of toxic effects which can be easily detected clinically before becoming harmful. The first effect is a loss of appetite quickly followed by nausea

and vomiting, then diarrhea. The gastrointestinal symptoms result from direct action on the emetic center. With the appearance of gastric disturbances are changes in the pulse, and if the drug is continued, complete heart block results. Withdrawal of the drug at the first symptom of toxic effect is promptly followed by relief of all untoward symptoms.

As far as is known, the toxic effects of digitalis have no antidotes. If the toxic state is reached, the drug should be omitted for several days before resuming therapy. Digitalis in the adult is eliminated at the rate of about two or three grains daily. So, if it is desired to keep a patient digitalized, this dose will usually get the desired results. However, smaller doses may accomplish this. A patient under digitalis therapy should be constantly under the observation of a physician.

Digitalis apparently has no effect in cases of hypertension where the cardiac muscle is hypertrophied and is compensating. However, in these cases it has been pointed out that small doses of digitalis tend to diminish progressive hypertrophy, and Christian advises in these cases that where hypertrophy is to be expected small doses of digitalis are indicated. This is also true in cases where hypertrophy might develop in the hearts of older people. This is probably the reason why McCrae several years ago in his *Oration on Digitalis*, at the Oklahoma City Fall Clinics, advised small amounts of digitalis empirically in older patients, as he said he did not know why, but he was in the habit of giving this type of an individual small doses as he seemed to get good results.

In severe toxic conditions, such as pneumonias, the results obtained from digitalis therapy, in the slowing of the heart rate, do not seem to be constant. Recently I had occasion to observe a patient who was given one and one-half grains of digitalis every three hours for a week, with no appreciable slowing of the heart. The rate only slowed as the patient's condition improved. It has been shown that in cases running a fever digitalis has very little or no effect on the pulse. I also had occasion to observe one who, after several days of such therapy, developed a complete heart block. Personally, we feel, in severe toxic conditions where the only evidence of myocardial failure is tachycardia, that morphine is the drug of choice. Morphine occupies a position of equal importance to digitalis in the opinion of those who practice cardiology. The effects are secondary by producing physical quiet in the most restless cardiac patient, permitting him to rest, thereby relieving the burden on the heart—something no other drug can accomplish. In addition, all cardiac patients are more or less apprehensive; rest and sleep are their most urgent needs.

In referring back to pneumonia and in reviewing statistics from a number of hospitals where they have tried to determine the worth of digitalis in pneumonia—a series of cases numbering many thousands, without exception the mortality has been greater in cases where digitalis was used than in cases where digitalis therapy was not used.

Wyckoff, DuBois and Woodruff, after a very comprehensive survey of digitalis in pneumonia, summarize their results as follows: "Digitalis may perhaps be life saving in an occasional patient in whom there is auricular fibrillation or auricular flutter. Auricular fibrillation and auricular flutter occur rarely, in less than five per cent of all cases. Patients developing this condition frequently recover without digitalis. It is believed by us that the routine giving of digitalis to patients with lobar pneumonia is dangerous."

Bethea states that in pneumonia where auricular fibrillation or auricular flutter develop full doses of digitalis are indicated; otherwise, no digitalis. He uses digitalis in about five per cent of his pneumonia cases.

Sturgess advises against the use of digitalis in the apparently normal heart, but only in cases where the myocardium is hypertrophied does he feel that digitalis therapy is indicated.

Ronald Hamilton, in his review of one hundred and seventy-eight cases of pneumonia, feels very similar to the way Sturgess does.

Burgess and White, over a five-year period from January 1, 1921, through December, 1925, reported two hundred and twenty-one cases of lobar pneumonia. These were divided about equally—49.8 per cent received no digitalis; 50.2 per

cent, varying amounts of digitalis. They made a very thorough analysis of these cases and from the summary found that there was a definitely higher mortality among those cases receiving non-digitalizing doses, but if the drug is to be used, full digitalization should be accomplished. It appears that the systematic administration of digitalis in digitalizing doses may be of some benefit in this series of cases.

Rufus Cole, of New York, recently made the statement that it was impossible for him to see any benefits in pneumonia cases from digitalis.

Bohan, of Kansas City, has made the statement that in pneumonia digitalis has killed more people than it has ever saved.

In diphtheria there is some evidence to show that digitalis lowers the mortality, but we feel, through experience, that digitalis should never be given to a patient with a post-diphtheritic cardiac condition, as in this case there is very frequently a heart block, and already damage in conductivity of the heart muscle.

It is the general concensus of opinion that in cardiac conditions, diuresis following digitalis therapy is obtained by improved circulation in the kidneys. However, there is definite evidence to show that digitalis acts directly in the kidney as a diuretic; so, in cases of hypertension, with edema, digitalis is indicated.

To summarize: It is in auricular fibrillation and auricular flutter, associated with myocardial failure, that digitalis plays its big role. However, it is indicated in cases of cardiac hypertrophy or where hypertrophy may develop. It is contraindicated in pneumonia without an associated auricular fibrillation and in the post-diphtheritic heart. Digitalis may be used as a diuretic.

In reviewing this paper, we sincerely hope that you will not be too critical of the facts as we have mentioned them and as we have observed them in our practice during the past. Sir William Mackenzie made his name in the world of medicine not through his experiments in the physiology laboratory, but in the laboratory of his practice. It is true that the laboratory of scientific research on animals has its place, but whether and how a drug will act can only be proved by the watchful eye of the clinician.

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PRE-NATAL CARE*

With Special Reference to External Version

H. M. McCLURE, M.D.
CHICKASHA

The title of this paper is not one to cause any doctor to come, or stay to listen, but I would like to discuss a phase of pre-natal care you will be unable to find in the current books, or periodicals, and which I am sure, will lower your fetal mortality fifteen per cent. This particular phase of pre-natal care is properly called external version.

But first let us review a few of the important points in connection with pre-natal care. The first visit of an expectant mother, especially if she has never been your patient, is rather exacting and trying for her, and you must proceed very kindly and cautiously. The lines of interrogation and conversation you should follow will vary in accordance with her mental reactions. It is my routine procedure to find out what the two of us have in common, whether it be books, bridge, dogs or what not, then we feel we know each other. She will be full of questions, some reasonable, some otherwise. Answer them to the best of your ability, and get a careful family history, with special reference to her mother's deliv-

*Read before the Obstetric and Pediatric Section, Annual Meeting, Oklahoma State Medical Association, Enid, April 7, 1936.

eries. Then obtain her past and present history. Tell her what you will expect of her and what she may expect of you; take her blood pressure and weigh her. She will want to know something of the cost of her coming event; explain your charges to her and insist upon her husband coming to see you, for it is much easier to talk business with a man than a woman. Unless there is something urgent to attend to, ask her to return within a week for a complete physical examination. The ice is now broken and she has found out that you are a fellow she can talk with and that really there is nothing to be frightened about.

During the second visit, a complete physical examination must be made. This should be a very careful and meticulous examination, for during pregnancy all of the organs of the body will carry an extra load, and a faulty one will surely crack, as pregnancy progresses. So make this examination well; it is not only good for your soul, but is very convincing to the patient, for gone are the days of a prescription without an examination. This examination should include pelvic measurements, urinalysis, complete blood counts and a Wassermann if possible.

Now you are in position to advise her concerning her general health, mode of living and diet. Advise and prescribe for any physical ailment she may have. I find it important to keep the total gained weight down to below twenty-five pounds. This is generally easy to do if you can get your patient to eat only three times a day, a well balanced diet, with a limitation of sweets and fats. Her gain in weight every two weeks will tell you if she is fudging. I will not dwell upon the correction of dental caries and other conditions which may arise as pregnancy progresses, for I am sure you gentlemen are better qualified and more experienced along those lines than I.

See her every ten to fourteen days and it will be much nicer for you, and greatly appreciated by your patients, if you will set aside one day, or a part of a day, on which to see your expectant mothers. In a kind and gentle way let her and her relatives understand that you alone are boss, for this will save you many minutes of listening to numerous people who have something confidential to tell you concerning her case.

When friend hubby makes his appearance, go over the financing of the expected event very carefully, making every allowance for his ability and willingness to pay; tell him what you expect, and that these conditions must be met. This, too, will save you time and worry in the future. I find it an excellent plan to have them pay a certain amount every two weeks. In other words, have the young lady bring some money along with her specimen of urine, and she should, for you are giving your time, and you are entitled to your pay. You will find that this commands respect, and that you will unconsciously give her more time and consideration. Never let them talk you into waiting until delivery is over. The above plan makes it easier for them, and certainly better for you. Pay patients are easier to handle.

Now get down to brass tacks with the young man, and talk to him about the changes he may expect in his wife's mental and physical make-up during pregnancy, some he must allow for, and others he must help you correct. Then discuss the problem of intercourse, for believe it or not, this is very important. I advise them to have intercourse during pregnancy until the latter months, not only will most of them want to, but it saves me the embarrassment of opening Bartholin abscesses during the latter part of pregnancy, and makes for happier homes.

Now along about the sixth and one-half month you are ready to make your diagnosis, as to position and presentation, remembering that these change often as pregnancy progresses. This is easily done, if you will give a little of your time, and it will be very convincing to your patient. They get a kick out of having you listen to the fetal heart. I will not discuss the procedure of making a diagnosis of position and presentation, for it can be found, along with pictures and diagrams, in any standard book of obstetrics.

Now suppose you discover that she has a transverse or breech presentation; keep it to yourself, as these conditions have been known to right themselves. Examine her carefully each time she comes in, and

make notes as to any change in the position of the fetus. After the seventh and one-half month if the fetus has not righted itself, you can rest assured that it will not. Here it is my customary practice to do what is called an external version. What do we mean by version? We mean a maneuver which changes the polarity of the fetus, with reference to the mother. The object being to change an abnormal or relatively abnormal relation into a normal one.

I realize I am discussing a subject that most of you gentlemen have forgotten, as very little is said about external versions in the medical schools, post-graduate courses or books. I am not advising you to follow my teachings, but I believe that as soon as the medical profession realizes the difference in the fetal mortality of a cephalic and breech delivery, and that an external version can be done easily, I am sure the fetal mortality will be lowered fifteen per cent. This is a procedure which any of you gentlemen can learn to do easily and safely anywhere. For the next few minutes I would like to discuss the difference between cephalic and breech presentation, and why I prefer to convert a breech into a cephalic presentation.

First: The maternal mortality is higher in breech cases, the reasons being labor is longer and internal examinations more frequent, both increasing the dangers of infections. Effacement and dilitation of the cervix are not so perfect, hence lacerations are more common. Since the head comes rapidly through the unprepared pelvic floor, rupture of the perineum is frequent, extending often through the rectum. Disturbances of the mechanism of labor are frequent, and since they demand the introduction of the hand or other operative procedures, the prognosis for the mother is doubtful. Post partum hemorrhage is increased. Most of these dangers can be eliminated by converting a breech into a cephalic presentation.

Second: In breech presentations the fetal mortality ranges from fifteen to thirty per cent in the best hands. This includes both primiparas and multiparas.

Indications for doing an external version: Any transverse or breech presentation.

Contra-indications: Twins, monstrosoties, and placenta previa.

Dangers: Rupture of the uterine wall, separation of the placenta, induction of labor. These things I believe can happen during an external version, but which can be avoided by careful and gentle manipulations.

In order to do an external version the following conditions must be present:

1. Confidence of your patient. Explain how and why you are going to turn the baby, and assure them it will not be painful, and that it will not harm the baby.
2. The fetus must be movable; in other words there must be plenty of liquor amnii, and the abdominal walls must be relaxed.

Procedure: Have the patient report to your office or hospital in the morning without any breakfast. Give her some of the mild barbiturates to quiet her nervous system, place her in bed with the foot elevated for thirty to forty minutes. Then give her one-fourth grain of morphine hypodermically and place her on a table in Trendlenburg position for thirty minutes, or until you are certain the anterior abdominal wall is relaxed. Then locate the fetal head, breech and back. One hand is placed on the breech, the other over the head, and by alternate stroking and pushing movements the head is guided downward, while the breech is coming up. I use the ball of my thumb, as it seems to hold the fetal head easily and I am sure of not making much pressure. Take plenty of time and do not use much effort. As the fetus begins to move, you will notice that the uterine ovoid which was longitudinal with the long axis of the mother, will begin to appear as transverse, and as the maneuver is continued you will notice the uterus shorten and widen. Here is where you must be very slow and careful, and soon you will no longer feel the fetal head, as it suddenly drops into the mother's pelvis. Now elevate the head of the table and palpate the fetus, and you will find the head in the pelvis, the breech in the fundus and the fetal heart tones in the lower quandrants. Occasionally I have had to rotate the fetus in the opposite direction, that is, bringing the

breech up towards the face of the fetus. Then begin to push the head and shoulders downward in the opposite direction, but the first maneuver is generally the easier one. This is found in the text books as Weigand's version and is usually in small print at the bottom of the page. After you are sure the fetus has been turned, have the mother stay awhile, then she may return home, with the instructions to stay in bed the remainder of the day, and to call you if she has any backache or cramp-like pains in the abdomen, in which case give her some opiates, but you will find this unnecessary in most cases. This has been my procedure for some seven years and I have never had any reason to change. Up to date, all of the versions have turned out as cephalic presentations with normal delivery with one exception, a young lady with a slightly contracted pelvis, who required a low-forceps. Here I am sure I saved a baby's life for I feel sure, had it remained a breech, and had the after coming head without any chance to mould, been pulled through this pelvis, a fatality would have resulted.

I have been unable to do a version in only one case, this being due to lack of fluids and a tight abdominal wall. In other words, I could not do a version easily so I quit.

To illustrate how you may convert a chaotic situation into happiness, I just recently had a lady who had lost two babies, both breech cases, in the hands of two competent men. This last pregnancy was also a breech which I converted into a cephalic presentation at the eighth month. She came into the hospital after she had been in labor three and one-half hours. There was complete dilitation, bag of waters still intact and the head was floating. I was afraid the inlet was too small for the head but I let her labor and the head gradually moulded and five minutes after the head engaged she delivered.

I would like to show you a few x-rays taken before and after version. I do not x-ray all of my patients, as it is too expensive. I do this sometimes to check my findings and to grandstand with the patients or relatives. After I have shown these I would appreciate a discussion and will try to answer any questions. I believe this subject worthy of thought and I welcome constructive criticism.

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INTRA-NASAL OXYGEN THERAPY*

H. K. Speed, M.D.
SAYRE

History: The subject in question is one that I feel has been very much neglected. Oxygen as a therapeutic agent has been employed for many years. Until recently, the last three or four years, the method of application has been too bunglesome and expensive to be of any great value except in liberally endowed institutions.

It was, I believe, first used by means of an oxygen chamber which cost from three to five thousand dollars per unit, and later by an oxygen tent, many models of which are on the market, all of which are rather expensive, both in the initial equipment and in the use of oxygen. Too much detail of a technical nature is required to maintain a person in either of these above mentioned methods.

Administration: The simplest way to administer oxygen is by a small caliber, ten or twelve French gage, rubber catheter inserted into the nostril about four and a half to five and a half inches from the alae of the nose. It is passed back to where it is visible behind the uvulae and then withdrawn just out of sight. The catheter is then fastened by adhesive straps to the surface skin of the face.

The apparatus for this administration

*Read before the Section on General Medicine, Annual Meeting, Oklahoma State Medical Association, Enid, April, 7, 1936.

can be made by any country doctor with a little bit of effort and an outlay of about two dollars' expense. Any welding establishment, one of which can be found in any county, handles pure commercial oxygen. For the dispensing of its contents there is a special gage, several types of which are available at a cost of from ten to fifteen dollars, that will regulate the flow as desired.

The oxygen is conveyed through a rubber tube into a gallon bottle nearly filled with water. The oxygen is released under water through the glass tube to insure saturation of the gas with moisture. This bottle is connected from above the water to a second bottle containing no water, through which the gas is passed to remove any excess of moisture, making certain that free liquid will not be carried into the patient's lungs.

A glass tube from the second bottle is connected to a rubber tubing which is likewise connected with the soft rubber catheter in place in the patient's nostril.

Care should be taken not to connect the gas with the catheter until the desired flow is started for fear there will be too sudden flow of gas when it is turned on. It should be regulated so that there will be just short of a continuous stream through the water. In other words, a constant flow of bubbles of oxygen through the water in the first bottle.

Concentration: This amount will give the patient from four to six litres per minute, which has been found to be about the proper amount for the best results. To get proper therapeutic effects the patient must receive in the neighborhood of about thirty-five per cent or more oxygen in the air. Anything under thirty per cent seems to be of practically no therapeutic value.

By the above method it is found by a careful test that from thirty-five per cent to even as high as seventy-four per cent oxygen can be delivered to the patient's pharynx. Of course, for a seventy-four per cent delivery there must be liberated something like fifteen litres per minute, which is excessive and unnecessary.

Wisconsin General Hospital: We by no means claim any originality of this method. It was brought to me by my son who interned in the Wisconsin General Hospital, Madison, where it is extensively used. In fact, they have one hundred and twenty-eight rooms in their hospital piped for oxygen which is used exclusively by this method.

Many of you gentlement will, no doubt, remember Dr. Waters, chief anesthetist of that hospital, who demonstrated this same type of apparatus before the Oklahoma City Clinical Society last fall.

Uses of oxygen:

1. Makes breathing easier and gives more comfort thereby.
2. Slows pulse and respiration and lowers temperature in fibrile cases.
3. Increases arterial oxygen saturation and relieves cyanosis.
4. Often prolongs life until immunity can be built up to make recovery possible.

Most common failure in oxygen therapy where otherwise success could be had:

1. Procrastination in beginning the medication.
2. Improper administration.
3. The expense attached thereto.

Procrastination: In the first instance you should not expect much relief from the administration of any therapeutic agent in a moribund patient. Therefore, begin your oxygen early when the pulse rate or respiration becomes accelerated. And, if possible, before cyanosis appears. If you are not able to begin it before cyanosis appears, begin it as soon as possible thereafter.

Improper administration may be had by the catheter being placed too far down in the pharynx, causing irritation. Or not far enough down, causing escape of the gas, or an improper or not sufficient flow of gas from the tank.

Expense: The expense is not a big item. The average container, which costs five dollars, ordinarily will last five days. It is seldom necessary to continue its use more than the length of time it will take to empty two tanks.

Oxygen therapy is especially useful:

1. Pneumonia, both lobar and bronchial.
2. Post-operative collapse of the lung.
3. Asthmatic paroxysms until other therapeutic agents can take effect.
4. Atelectasis of the newborn.
5. Emphysema.
6. Fibrosis of the lung with acute oxygen want.
7. Asphyxia of any kind, especially if used with carbon dioxide.
8. Congestive heart failure.
9. Coronary thrombosis and angina pectoris.

Pneumonia: We feel as if the greatest field for oxygen therapy by the nasal catheter method is in pneumonia, because we have that widespread over all the country and in the hands of many men who do not have access to a hospital. We feel as if many lives can be saved from this dreadful disease if one of these simple apparatuses could be put in the hands of every practitioner in the country.

During the last two years my son and I, in our private practice, have treated some forty cases of pneumonia by this method. We have found that almost invariably after beginning the administration of oxygen the temperature, pulse, and respiration are materially reduced. If the patient is cyanotic, but not moribund, the cyanosis almost invariably disappears within a short time. The patient will tell you within a few minutes that he feels better.

Some clinicians say that oxygen should be begun when cyanosis is evident and continued in sufficient concentrations to keep the finger nails pink. Our experience, and that of many men who have had vastly more experience, is that it should be given before there is an onset of cyanosis and anoxemia, which is evidenced by high temperature, rapid pulse, and increased respiration.

The pulse rate should be a better index than cyanosis for the amount or time to begin oxygen. After cyanosis has developed, much more damage has been done.

When the discontinuance of oxygen is anticipated, it should be brought about gradually. Otherwise there is likely to be a severe reaction as evidenced in mountain sickness where going from a low to a high altitude. In cases where the heart has been materially impaired this might even prove fatal. Also the temperature, pulse, and respiration are likely to rise again.

Coronary occlusion: In acute coronary occlusion or any congestive heart failure where there is cyanosis and dyspnoea, it will often tide the heart over until it can be adapted and regain its equilibrium.

Chronic cyanosis: It should not be used for the mere fact that there is cyanosis. To do so may produce in the patient an intolerance for its discontinuance.

Angina: In anginal pains where the cause is general and not localized in a small area of the heart muscle, the pain is very readily relieved. If it is not readily relieved you may be certain that it will not be benefitted by oxygen therapy.

Asthma: Where the paroyxsms are severe inhalations of oxygen in a concentrated form will often give almost immediate relief, thereby making the patient comfortable until other therapeutic agents can be employed.

Asphyxia: In an obstruction of the air passage as by a foreign body or laryngeal diphtheria, death often comes from air hunger which seems out of proportion to the obstruction, or the infection in laryngeal diphtheria. Oxygen therapy is very useful in these cases if used before the resistance is broken down.

I believe no one claims a specific therapeutic action for oxygen therapy. It acts somewhat like glucose in maintaining the resistance, especially in edema of the lungs and anoxemia, which, if left alone, will further break down the resistance. By a liberal use of a concentrated flow of oxygen it has been many times demonstrated that this resistance can be redeemed until the body can build up sufficient immunity to the toxins to prolong and save life.

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Failure to receive The Journal should call for immediate notification of the Editor, McAlester Clinic, McAlester, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes of addresses, births, deaths and weddings will be gratefully received.

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EDITORIAL

AN IMPORTANT RESPONSIBILITY

The most important responsibility that faces the membership of the Oklahoma State Medical Association at this time is the meeting of the allotment that was made by the action of the House of Delegates on each County Medical Society amounting to $10.00 per capita.

This money, as you know from a letter recently published by the Legislative Committee, is to be used for Legislative purposes. The Legislative Committee has recently opened headquarters in room 601 Ramsey Tower Building, Oklahoma City, and Mr. Jess Harper, the Executive Secretary of this Committee, is in charge of these headquarters. Office rent, executive's salary, stenographer's salary, postage, stationery, *et cetera*, is now a more or less fixed charge against this fund and will amount to approximately $500 or $600 each month, consequently the money must be available to meet this expense which is being incurred by this Committee, by your direction. The doctors of this State said very plainly, by their action in the House of Delegates at Enid, that they demanded activity upon the part of the Legislative Committee and instructed them to use every effort to see to it that a new Medical Practice Act and Basic Science Law were passed by the next Legislature. The Legislative Committee is making every effort to carry out this mandate of the House of Delegates and now it is the duty of the membership to furnish the funds in order that this purpose may be accomplished.

If your County Society officers are not awake to the necessity of this, each member should see to it that immediate action is taken by their County Society and that this allotment is paid in full.

I am taking the liberty of publishing this editorial as an adjunct to the request made in the last issue of THE JOURNAL by the Legislative Committee and I will ask each doctor to feel that this is his job and that his job has not been accomplished until he and every member of his County Society has contributed the allotment made by the House of Delegates.

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HIGHWAY FIRST AID STATIONS

The plan for highway first aid stations, which was first promulgated by the Fracture Committee of the American College of Surgeons and later adopted as a major activity of the American Red Cross, should receive not only the endorsement but the full cooperation of County Medical Societies.

The expense of these units is met by the local Red Cross Chapter and amounts to but a few dollars for standard equipment. The location of the units is determined by a Committee appointed by the Chairman of the local Red Cross organization and are usually placed at filling stations, tourist camps or rural stores where the services of a physician are not readily available.

It is required that the personnel of these aid stations take a fifteen hour course of instruction comprised of splint application, hemorrhage control, artificial respiration, *et cetera*, this course to be under competent direction and the applicant at the termination of the course must submit to an examination and demonstrate his efficiency.

These units also will have at hand information as to procuring medical attention, ambulance service and hospitalization in order that prompt disposiiton may be made of all emergency cases.

There is no question but what the installation of these units throughout the state will materially decrease both morbidity and mortality and the County Medical Society will be meeting its obligation to the traveling public by contacting the officers of their local Red Cross Chapter and giving their support to the carrying out of this very important program.

INSURANCE MEDICAL DIRECTORIES

The attention of all members is called to the following resolution adopted by the Arkansas Society at the Hot Springs meeting April 29, 1936:

"WHEREAS, certain commercial interests are publishing medical directories, listing physicians by specialty and otherwise, as available for insurance and compensation work, and other professional services, and

"WHEREAS, participation by listing in these lay publications merely serves for the profit of promoters, and is furthermore technically indirect solicitation of patients.

"THEREFORE, BE IT RESOLVED, That the Arkansas Medical Society condemns these practices as unethical and forbids its members to continue listing their names in such directories, and

"BE IT FURTHER RESOLVED, That the Arkansas Medical Society requests the House of Delegates of the American Medical Association to take similar action."

The resolution was presented to the House of Delegates of the American Medical Association and referred to the Judicial Council for study. The Judicial Council approved the resolution and recommended its adoption, which the House of Delegates did at the session of May 14, 1936.

The attention of our members has been previously called to the activities of these directory publishers. As is often the case, individual physicians felt that they might incur a loss if they removed their names from such directories while other members retained their listing. With this thought in mind, the above resolution has been adopted. The practice of so listing is declared unethical; no individual member may now feel that should he remove his name that another physician will accept that listing. The benefit is direct to these physicians in the fees saved; the loss is entirely the promoter's.

Some idea of the financial gains involved in the publication of these directories may be understood when we state that one directory now on our desk contains the names of approximately five thousand physicians. Ninety-two Arkansas physicians are listed in the three directories available to The Journal. The fee charged for listing in this one directory is $15.00 per annum. A liberal estimate of the cost of publication and distribution is $15,000. The balance, $60,000, is presumably divided between the promoter and his solicitors. Verily, a most altruistic motive prompts the publication.

THE AMERICAN BOARD OF INTERNAL MEDICINE (INC.)

The American Board of Internal Medicine, incorporated February 28, 1936, completed its organization on June 15, 1936. The officers chosen were Walter L. Bierring, M.D., Des Moines, Chairman; Jonathan C. Meakins, M.D., Montreal, Vice-Chairman; and O. H. Perry Pepper, M.D., Philadelphia, Secretary-Treasurer. These officers with the following six members constitute the present membership of the Board: David P. Barr, M.D., St. Louis; Reginald Fitz, M.D., Boston; Ernest E. Irons, M.D., Chicago; William S. Middleton, M.D., Madison; John H. Musser, M.D., New Orleans; and G. Gill Richards, M.D., Salt Lake City.

The purpose of the Board will be the certification of specialists in the field of internal medicine, and the establishment of qualifications with the required examination procedure for such certifications.

The first written examination will be held in December, 1936, and candidates successful in this written test will be eligible for the first practical or clinical examination which will be conducted by members of the Board near the time for the annual session of the American College of Physicians at St. Louis in April, 1937. The second practical examination will be held at Philadelphia near the time of the annual session of the American Medical Association in Atlantic City, June, 1937.

The fee for examination is forty dollars which must accompany the application and an additional fee of ten dollars is required when the certificate is issued.

Application blanks and further information can be obtained by addressing the office of the Chairman, Walter L. Bierring, M.D., 406 Sixth Avenue, Des Moines, Iowa, U. S. A.

Editorial Notes—Personal and General

DR. W. K. HAYNIE, Durant, is now associated with his father, DR. JOHN A. HAYNIE, in the practice of medicine.

DR. SAMUEL R. CUNNINGHAM, 64 years old, widely known Oklahoma City surgeon, died September 7th in St. Anthony Hospital after a brief illness. He lived at 323 Northwest Nineteenth street.

American Board of Obstetrics and Gynecology Examination in November

The next written examination and review of case histories of Group B applicants by the American Board of Obstetrics and Gynecology will be held in various cities in the United States and Canada on Saturday, November 7, 1936.

Application blanks and booklets of information may be obtained from Dr. Paul Titus, Secretary, 1015 Highland building, Pittsburgh (6), Pennsylvania. Applications for this examination must be filed in the Secretary's office sixty days prior to the scheduled date of examination.

LEGISLATIVE FUND

County	Allotment	Amt. Paid
Adair	$ 40.00	
Alfalfa	70.00	
Atoka-Coal	30.00	$ 10.00
Beckham	140.00	130.00
Blaine	90.00	
Bryan	240.00	110.00
Caddo	240.00	
Canadian	230.00	
Carter	260.00	
Cherokee	30.00	
Choctaw	70.00	60.00
Cleveland	270.00	
Comanche	190.00	
Cotton	90.00	
Craig	150.00	80.00
Creek	330.00	185.00
Custer	230.00	210.00
Garfield	420.00	
Garvin	150.00	
Grady	230.00	160.00
Grant	40.00	
Greer	110.00	
Harmon	80.00	
Haskell	60.00	40.00
Hughes	170.00	
Jackson	160.00	100.00
Jefferson	110.00	
Johnston	10.00	
Kay	330.00	220.00
Kingfisher	90.00	
Kiowa	170.00	
Latimer	40.00	
LeFlore	160.00	100.00
Lincoln	150.00	30.00
Logan	200.00	
Major	30.00	
Marshall	50.00	
Mayes	110.00	20.00
McClain	60.00	
McCurtain	70.00	
McIntosh	60.00	50.00
Murray	110.00	
Muskogee	520.00	10.00
Noble	40.00	
Nowata	50.00	
Okfuskee	150.00	
Oklahoma	2740.00	955.00
Okmulgee	320.00	
Osage	220.00	140.00
Ottawa	310.00	
Pawnee	100.00	90.00
Payne	250.00	140.00
Pittsburg	350.00	170.00
Pontotoc	300.00	290.00
Pottawatomie	330.00	140.00
Pushmataha	80.00	
Rogers	120.00	
Seminole	320.00	
Sequoyah	10.00	
Stephens	220.00	
Texas	50.00	
Tillman	100.00	
Tulsa	1980.00	
Wagoner	40.00	
Washington	250.00	210.00
Washita	120.00	
Woods	190.00	140.00
Woodward	260.00	140.00

NOTE—Corrections and additions to the above list will be appreciated.

Program for Post-Graduate Course on Tuberculosis

The following program has been announced for the Post-Graduate Course on Tuberculosis which will be given Tuesday afternoon and evening, September 29, 1936, in Tulsa, Oklahoma.

1:15—Home Management of Childhood Tuberculosis, Dr. F. P. Baker, Superintendent Eastern Oklahoma Tuberculosis Sanatorium, Talihina.

1:50—Discussion—Dr. Will C. Wait, Superintendent, Western Oklahoma Tuberculosis Sanatorium, Clinton.

2:05—Procedure in Finding Source of Contact in Children Showing Reaction to the Tuberculin Test, Dr. L. J. Moorman, Oklahoma City.

2:40—Discussion—Dr. O. A. Flanagan, Tulsa.

2:55 Manifestations of Early Tuberculosis and X-ray Interpretations, Dr. R. M. Shepard, President, Oklahoma Tuberculosis and Health Association, Tulsa, Oklahoma.

3:30—Discussion—Dr. R. M. Burke, Soldiers' Hospital, Sulphur.

3:45—Importance of Tuberculin Tests and X-ray in Childhood and Youth, Dr. J. D. Riley, Superintendent, Arkansas Tuberculosis Sanitorium.

4:30 to 5:30—Clinics and Questions.

Public Meeting—7:30 to 9:30

Address—Tuberculosis: Its Relation to the Community, Dr. J. D. Riley.

Moving Pictures—Tuberculosis and How It May Be Avoided. (One reel, silent. A scientific explanation emphasizing childhood type of tuberculosis.)

Story of My Life by Tee Bee. (One reel, silent. Animated cartoon and photographs of actual scenes. The germ of tuberculosis tells his life story to Prof. Buzzle, who has discovered how to talk to germs.)

Contacts. (Two reels, sound. Search is made among members of a household for the source of tuberculosis infection.)

Behind the Shadows. (One reel, sound. A doctor explains what tuberculosis is. As he speaks offstage, pictures, X-rays and animated diagrams illustrate his story.)

We again urge you to make your plans to be in Tulsa on September 29. (Note the change in date.) The speakers and their titles indicate the high type of program that will be presented. The films to be shown cover the subject of tuberculous infection and disease carefully with clear illustrations and explanations. Also, they tell you the type of public education promoted by tuberculosis associations, thus being particularly helpful to doctors in discussing these problems with their patients.

CARL PUCKETT, M.D., Managing Director,
Oklahoma Tuberculosis and Health Association.

The Antagonistic Effect of Metrazol to Shock and Anesthetic Depression

Karl Schlaepfer (Anesth. and Anal., 15:202-206, July-August, 1936), calls attention to the desirability of having some preparation on hand which would tend to restore normal cardio-respiratory function when shock or anesthetic depression occurs in surgical cases. Metrazol satisfies these requirements by its prompt, direct action, without an over-stimulation of the circulation or respiration.

Since surgery is necessary in a great many patients who are "bad surgical risks" and it is desirable in other cases to shorten the period of post-operative depression, the effect of Metrazol was studied in both types of cases. In the first group, one or two cc. Metrazol were usually given

both pre- and post-operatively at intervals of one to two hours. Normal saline and glucose were used in conjunction with Metrazol in a number of these cases and "often desperate cases responded to this combined treatment by lowered pulse rate and the respirations would become deeper and less frequent." The rapidity of the improvement could be regulated by shortening the intervals between the injections of Metrazol.

In the second group of cases, two cc. of Metrazol were given slowly, intravenously immediately after the operation if it was desirable to have the patient awaken within the first hour. This was followed by a second dose within a half-hour which would bring about slow, complete awakening. When it was not necessary to obtain the prompt awakening which follows the intravenous injection of Metrazol, but merely to shorten the period of post-operative depression, one dose of two cc. of Metrazol was injected intramuscularly.

In summarizing his results Schlaepfer states: "Metrazol is a useful adjunct to the surgical care of debilitated patients, to prevent or to overcome shock. In patients given avertin as a basal or complete surgical anesthetic Metrazol gives a striking effect. The period of post-operative hypnosis can be shortened to about one-fourth of the time usually noted."

Information on Metrazol can be obtained from the Bilhuber-Knoll Corporation, Jersey City, N. J.

OBITUARIES

DOCTOR M. L. PERRY

Dr. M. L. Perry was born in Troy, Alabama, in 1870, and with his parents moved to Greenwood, Arkansas, when a mere youth, his father later dying and leaving him, a widowed mother and two younger brothers. He being the eldest, the mantle of responsibility was at once his banner and guide and he fell to his task like a true soldier. Like the average family of very moderate means, they were confronted with sickness, troubles, and disappointments; stung by that embarrassing handicap of financial aid and security in securing the wants and necessities of life. His heart being burdened by seeing his loved ones in their hours of affliction and sickness and admiring as idol gods the kind, sympathetic, friendly, loving old character known as the family physician as they administered unto them. They inspired him with the zeal and determination of the American youth, that if his Creator would be kind enough to allow him to reach maturity and manhood, he would like to dedicate his life and service in administering and alleviating the pain and suffering of his fellowman in his hours of affliction and sickness. This privilege being granted him, he left the farm, the plow, and the old mule, saying: surely life held a better prospect for him.

In those days young, inspired medical prospects could go into the offices of the practising physicians and study as the law student did, using the practicing physician as a preceptor, until they reached the supposed-to-be stage of qualification when they could go before a county examining board and secure a certificate permitting them to practice medicine. And this was his route—but he soon saw that the foundation upon which he stood was not firm enough; so with his wife and children, he pushed steadily onward, practicing a year, and going to school a year, until finally he secured that cherished parcel or sheet of paper of which all medical students dream and build air-castles around, their sheepskin, from the College of Physicians and Surgeons, Dallas, Texas, in 1906. He pioneered in the Indian Territory at Bokoshe, later in Arkansas—moving from Greenwood, Arkansas, in 1915, to Tulsa, believing it held better prospects for him and his boys that he might better educate and provide for them.

During the World War when most of the younger men were in service, his practice grew to the point that he felt that he had to have a partner; naturally the call went to his brother, Dr. J. T. Perry, who preceded him in death about six years.

Dr. M. L. Perry has two sons that followed his footsteps in the practice of medicine, Dr. John C. Perry of Tulsa, and Dr. James Sidney Perry of Bryan, Texas, both having been graduated from the University of Oklahoma. At the same time Dr. J. T. Perry had two sons studying medicine at the Oklahoma University, and after his death a third one. In all, five Perry boys graduated in medicine from the University of Oklahoma, probably more by the same name and relation than is recorded in any other medical school. All was made possible by his influence and determination to make things better for all, by moving into a field that proved to have better financial possibilities and opportunities.

Dr. Perry was one of the founders and builders of the Immanuel Baptist Church and contributed heavily to its support. He was a thirty-second degree Mason and a Shriner, and a member of the Tulsa County Medical Society until his retirement from active practice on account of failing health.

The biography of all good men is a beautiful revelation when once told and in their departing leaves only that; and another footstep on the sands of time.

What greater heritage can a father bequeath his sons than a life well lived?

> With the dectums I have fought a good fight; I did the best I could. I have finished my course. I have tried to push forward in the high calling of my profession—do likewise.

Surely, the Portals of eternity will be blest by the entrance thereof of such simple and sublime souls.

(A tribute of a son to his father, by John C. Perry, M.D.)

ABSTRACTS : REVIEWS : COMMENTS *and* CORRESPONDENCE

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D.
717 North Robinson Street, Oklahoma City

Injuries to the Crucial Ligaments of the Knee Joint. Henry Milch. Soviet Surgery, X, 101, 1935.

After a thorough analysis of the physiology of knee motion and the role played by the crucial ligaments in this motion, the author gives a historical description of the surgical treatment of injuries to the crucial ligaments and a critical analysis of these operations. Citing examples from an extensive literature and basing his conclusions on his personal experience, the author finds that the importance of the crucial injuries is exaggerated, and that the chief offender in the loss of stability in knee injuries is the medial collateral ligament. The presence of an extensive tear of the crucial ligaments does not require their surgical restoration. The repair of the medial collateral ligament, which may be torn in early cases or weakened in old cases, is all important. The repair is accomplished by a restoration of this ligament with a fascia-lata transplant.

Rarefaction Osseuse Post-Traumatique (Post-Traumatic Rarefaction of Bone). Jean Baumgartner and Francis Berthoud. Presse Med., XLIV, 495, March 21, 1936.

Attention is called to the fact that, since the work of Leriche, the osseous system has come to be considered as a large reservoir of readily mobilizable calcium. Osteoporosis, the evidence of this mobilization of calcium, is the result of a prolonged hyperaemia, due to vasomotor imbalance which may be caused by traumatism or infection. The exact mechanism of the prolonged action of trauma has not been explained, except upon the basis of vasomotor instability. In this connection, the authors report the case of a young woman who had been subjected to bilateral oophorectomy eight years before the onset of trouble in the ankle and knee joints. The roentgenograms, which were examined by Leriche himself, suggested a post-traumatic osteoporosis with fracture. In view of the earlier operative intervention, homovarine (Byla) and tricalcine were given hypodermically daily, and later at longer intervals, for a period of three months. The disappearance of the lacunar defects under this therapy led the authors to the opinion that trauma plays a secondary or precipitating role in the development of osteoporosis, while the primary role is taken by some endocrine disturbance. They call attention to a communication by Leriche, who suggested injections of ovarian extract in the treatment of traumatic osteoporosis of the knee.

Four Cases of Ewing Sarcoma in Ribs. Hilding Bergstrand. Am. J. Cancer, XXVII, 26, May, 1936.

The author is convinced that Ewing's sarcoma of the rib is not extremely rare. The tumors originated in the sixth and eighth ribs in the back, and tended to grow into the pleural cavity, pushing the pleura ahead of them. They were coarsely lobulated tumors with their greatest length along the ribs. The roentgenograms showed a characteristic increase in density and volume of the ribs, with spicule formation. One of the patients, treated by operation and x-ray, is apparently free from disease over five years after operation, although pulmonary metastases were observed two years after operation. The author points out that this tumor occurs in those parts of the skeleton in which ossification begins toward the end of the second month of foetal life, and suggests that they may derive from the blastema cells of the mesenchyma. The paper is illustrated with roentgenograms and photomicrographs and reviews briefly the literature on the the histogenesis of these tumors.

INTERNAL MEDICINE

Edited by C. E. Bradley, M.D., Medical Arts Building, Tulsa; Hugh Jeter, M.D., 1200 North Walker, Oklahoma City

By HUGH JETER, M.D.

Blood: A Review of the Recent Literature. Raphael Isaacs, M.D., Cyrus C. Sturgis, M.D., Frank H. Bethell, M.D., and S. Milton Goldhamer, M.D., Ann Harbor, Mich. Archives of Internal Medicine, Vol. 57, No. 6.

DEFINITE DISEASES OF THE BLOOD
POLYCYTHEMIA

Adams emphasizes the tendency to bleed easily as well as the splenomegaly as important symptoms. In his group of cases every patient subjected to surgery suffered from post-operative hemorrhage.

Langer postulated that polycythemia is due to an imbalance of the vegetative nervous system and irradiated the paravertebral ganglions, getting a decrease in the red blood count. Nisbet also advocated roentgen treatment.

Wilbur and Ochsner found twelve cases of peptic ulcer in 143 patients with polycythemia.

Lunedei and Liesch attributed polycythemia and gastroduodenal ulcer to diencephalic hypofunction. Beyne, Binet and Strumza think that anoxemia is a primary feature and that polycythemia is of respiratory origin.

Reznikoff, Foot and Bethea concluded that "the vascular changes, expecially in the capillaries of the bone marrow in polycythemia vera patients, suggest the possibility that these lesions may result in anoxemia of the bone marrow with compensatory or excess compensatory polycythemia."

Reimann and Breuer report good results from venesection, 300 to 400 cc. of blood twice weekly. Briggs and Oerting produced a remission by gastric lavage from four to six times daily.

Tyler and Baldwin produced polycythemia in rats by exposing them to atmosphere in low oxygen for two to fifteen days.

PURPURA HAEMORRHAGICA

"Many etiologic factors may cause purpura, and various forms have been classified. The clinical value of these complex classifications is somewhat doubtful. The degree of bleeding is determined by three factors: (a) the platelets, (b) the permeability of the capillaries, and (c) the plasma. The diminution in the number of platelets may be due to a deficient formation in the bone marrow or to increased destruction by the reticulo-endothelial system (primarily the spleen). The disturbance of formation of the platelets in the bone marrow has been ascribed to a hormonal deficiency, resulting in the failure of the megakaryoblasts to maturate. The decrease in the number of platelets is thought by some to be the result of hemorrhage rather than the cause, the thrombocytes being withdrawn from circulation and fixed in the bleeeding areas as a defense mechanism."

Splenectomy, although usually associated with remarkable improvement in cases of thrombocytopenic purpura, may also be of no benefit. If the spleen is overactive and destroys the platelets in excess numbers, its removal is indicated however, if the decrease in the number of thrombocytes is the result of a disturbance in the production of platelets in the bone marrow, splenectomy is of little value. Because of the high mortality rate associated with splenectomy, ligation of the splenic artery has been recommended as a substitute. High protein and high fat diets are advocated. Viosterol and halibut liver oil are thought to be of no value. Snake venom has been employed in many instances with conflicting reports as to its value.

A most comprehensive review concerning the theories of blood coagulation, has been recently published by Howell.

EYE, EAR, NOSE AND THROAT

Edited by Marvin D. Henley, M.D.
911 Medical Arts Building, Tulsa

Circulation of the Aqueous. V. Mechanism of Schlemm's Canal. Jonas S. Friedenwald, M.D., Baltimore. Archives of Ophthalmology, July, 1936.

Other experiments of the author and associates are summarized by him as follows: "The reabsorption of water, of crystalloids and of colloids from the anterior chamber is in each instance effected by a separate and essentially unrelated mechanism. Colloids are removed by active phagocytosis on the part of the anterior layer of the cells of the iris, the endothelium. The removal of proteins is facilitated by the presence of proteolytic enzymes in the aqueous and the surrounding tissues. Crystalloid exchange takes place between the anterior chamber and the blood vessels of the iris by diffusion. The velocity of approach toward equilibrium in crystalloid content between the blood and the aqueous is controlled by the area of the iris (i. e., the state of contraction or dilatation of the pupil) and by the degree of hyperemia of the iris. In smaller part, some of the crystalloids of the aqueous are carreid out of the anterior chamber along with the reabsorbed water."

It has been shown that the reabsorption of water takes place almost entirely in the anterior chamber and therefore only the vessels of the iris and Schlemm's canal need be considered in estimating the mechanics of the action. It also has been shown that the congestion of the anterior ocular vessels tended to facilitate the reabsorption of water. It was concluded that the iris plays only a small part in the intra-ocular fluid exchange. By exclusion it was then concluded that Schlemm's canal played the principal part in the mechanics of the reabsorption of water.

The work of Duke-Elder, Maggiore, Sondermann and Theobald is critically discussed. Many photomicrographs portraying various interesting points in connection with his work accompany the article.

The author's summary and conclusion follow: "Schlemm's canal is not connected with the anterior chamber by any open channels or pores. It is connected with the intrascleral vascular plexus at the limbus by both efferent arterioles and efferent venules, the latter about four times as numerous as the former. The effects of a continuous flow of plasma from the afferent arteriole into the canal and of the dilution of the plasma within the canal with water osmotically attracted from the anterior chamber are discussed. It is shown that, within limits, an increase in the flow of plasma into the canal leads to an increase in the rate of absorption of the aqueous and a lowering of intra-ocular tension. Similarly a reduction in the flow of plasma into the canal would be expected to lead to a decrease in the rate of absorption of the aqueous and a rise in the intra-ocular tension. It is suggested that in some cases of chronic simple glaucoma the primary lesion may be a sclerotic occlusion of the efferent arterioles. Such sclerotic changes were found regularly in cases of advanced glaucoma and also in one early case of uncomplicated chronic simple glaucoma."

Fifteen Years' Experience with Drainage Tubes After Antrostomy in Children. John J. Shea, M.D., Memphis, Tenn. Archives of Otolaryngology, July, 1936.

In 1925 Shea reported five years' experience of using a rubber drainage tube in children after antrostomy. The conclusions of that paper that have stood the test of time are: (1) The end-results of antral drainage in children compare favorably with those obtained in adults. (2) Radical surgical operation on the antrum is rarely necessary in children. (3) Suppurative or allergic processes will arrest the development of the sinuses, but by re-establishment of their normal ventilation and drainage they are pneumatized and usually regain their lost growth. (4) The use of ordinary catheters, No. 12, 14 or 16 French, the size depending on the age of the patient, have been found satisfactory. A well placed tube remains in place, permits free drainage and is easily and painlessly removed; the self-retaining type of tube sacrifices caliber and is difficult to remove, extraction often being very painful

In the discussion of the selection of cases to be operated Shea makes the interesting observation that a sinus which has been arrested in development lacks the ability to combat infection. Before resorting to operative procedures to remove the focus of infection he uses local treatment with rest in bed and, when possible, hospitalization. His routine is to give the child a mixture of aminopyrine and phenobarbital and ephederine three or four times daily; pack the nasal passages with cotton soaked in a hypotonic salt solution; expose the area to infra-red rays for twenty minutes and then instill phenolated oil into the nasal passages; the use of a non-specific substance containing albumin, lipoid and fat or a streptococcus antigen; an occasional blood transfusion; suction, with or without displacement is tried; and in selected cases direct suction with a rubber catheter.

Ether is preferred for the operative procedure as this gives the operator adequate time to deliberately be thorough. After proper preparation the ostium of the antrum is found and dilated. He is of the opinion that the success of the operation is dependent on keeping the ostium patent. A culture is made of the antral material obtained by means of a syringe and needle. An antral trocar in younger children and a curved gouge in older children is used to make the naso-antral window. Ritter sounds are next used to adapt the opening for the proper size catheter and the catheter is inserted, using a sound for an obturator. Suction is applied and proper precautions are taken to be sure that the second opening is not plugged up or inadequately made.

In a child with a sinus infection it is unusual to find that the tonsils and adenoids have not already been removed. If a drainage tube is put in the antrum and there is any infected lymphoid tissue present it is removed at the same time.

Post-operative care consists of keeping the tubes open and instilling phenolated oil about the tubes. Acetylsalicylic acid is given at regular intervals to prevent headaches. Chemical antiseptics are no longer used to irrigate the antrum. On the fourth morning the tubes are removed painlessly. Irrigations are continued until the discharge stops. If there is a return of symptoms, then irrigations are again employed. An autogenous vaccine is given consistently over a long period of time.

The Pharyngeal Lymphatics as a Focus of Infection. L. E. Brown, M.D., Akron, Ohio. Annals of Otology, Rhinology and Laryngology, June, 1936.

Brown calls our attention to three primary statements, viz.; First: That any involvement of the lymphoid follicles or glands under discussion very rarely, if ever, is a primary focus of infection. Second: That as a secondary focus it is a definite factor and source for the distribution of infections, and has long been overlooked or unrecognized as such. Third: The elimination of this focus would aid in preventing infections which originate in the adenoids, tonsils, teeth, sinuses, etc., from being continued indefinitely.

The anatomy of the lymphoid structures and lymphatic drainage of the region with which the subject is concerned is reviewed. He says that the lymphatic drainage begins as a plexus of small closed lymphatic capillaries around and between practically all tissues. The capillaries join to form larger vessels which empty into regional lymph nodes. The region which he discusses has particularly to do with the retropharyngeal, the superior deep cervical and the inferior deep cervical groups. The channels from these groups enter the circulation by means of the right lymphatic duct, and on the left, the thoracic duct. The axillary nodes and the tracheo-bronchial groups may also be involved.

The lymphoid tissues that the above system drains in order of importance are: tonsils, adenoids, the so-called lingual tonsil, the lymphoid tissue at the base of the tongue, the pharyngeal tonsil, the lymphoid tissue at the lower end of the eustachian tube and the follicles on the surface of the pharyngeal mucosa. Special importance is attached to the presence of a string of infected follicles on the lateral pharyngeal walls.

Bearing in mind that an infection is either spread by the blood stream or as an embolic process or by the lymphatics, lymph nodes and infected lymph, the author does not think that these infected pharyngeal follicles should be overlooked when looking for an obscure focus of infection. He states that in thirty-seven per cent of the cases of focal infection, that the site of the infection is unknown. The painful throat, neuralgic or rheumatic type, and some of the low grade continuous fevers might be accounted for by this site of focus of infection.

There is a paucity of literature on this subject although Coates, Hutchings, Beatty, Cecil, Dunlap, Uffenorde and others have discussed it in a limited way.

The treatment of this condition has been rather unsatisfactory with various strengths of silver nitrate, chromic acid, trichloracetic acid, etc. Diathermy, radium and x-ray have been used with fair results The author likes to do a careful dissection of the infected tissue at the same time that any other surgery of the throat is done. With great care and patience, electro-coagulation may be used quite successfully The advantages of this procedure being that it may be done from time to time as necessary under local anaesthesia and requires no hospitalization. The discussion of diet, hygiene and general measures is omitted.

A Case of Thrush-Primary in and Confined to the Hypopharynx. E. Escat. Abstracted by E. J. Gilroy Glass and Published in The Journal of Laryngology and Otology, May, 1934. The original article from L'O.R.L. Internationale, 1933, xvii, 161.

The patient, a peasant aged fifty-eight years, had for eighteen months suffered from discomfort in the throat, slight difficulty in swallowing, and nausea. During this period he was frequently dyspeptic and his tongue was coated. For a fortnight prior to be being seen by the author his symptoms had been greatly aggravated; swallowing was almost impossible and although there was no stridor, there was a marked sensation of choking.

Indirect laryngoscopy was almost impossible owing to an intense pharyngismus. Direct hypopharyngoscopy showed a greyish white ulcerated area on the back wall of the hypopharynx which bled easily and was foetid. In conjunction with the history, the other signs and age of the patient, a diagnosis of neoplasm was made, and the patient was subjected to radium treatment by means of a collar. When seen two months later, cure appeared to be complete.

The patient was kept under observation from time to time, and for two years was free from symptoms. At the end of this period, dysphagia returned and direct pharyngoscopy showed a whitish plaque behind the right arytenoid and extending deep into the hypopharynx in the mid line. The diagnosis was revised and the case was now thought to be Vincent's angina. This, however, was not confirmed bacteriologically.

During the following year, the case alternately improved and retrogressed, but eventually extended until the false membrane covered not only the whole hypopharynx but also the laryngo-pharynx, sinus pyriformis, and the epiglottis, and the patient was extremely ill, with anorexia, and vomiting. A large piece of the false membrane was removed and again examined bacteriologically by Professor Ristal who reported "an extraordinary quantity of the mycelia of thrush."

In view of all this, all antiseptic treatment was stopped and treatment locally and internally with alkali was commenced. In less than forty-eight hours the patient was obviously better, and in eight days appeared to be completely cured. He was seen again one month later, when not only was the local condition completely cured, but his general health was perfect and he had put on weight.

SURGERY AND GYNECOLOGY

Abstracts, Reviews and Comments from
LeRoy Long Clinic
714 Medical Arts Building, Oklahoma City

Acute Streptococcic Septicemia Originating About Teeth and Gums. (Septicemies Streptocociques d'Origine Gingivo-Dentaire). By Jean Fleury and M. Miniere, Rouen. La Presse Medicale, June 24, 1936.

Emphasis is laid upon both acute septicemia and chronic toxemia originating from foci about teeth and gums. The authors speak particularly of the possibility of foci in the mouth being sources from which acute septicemia sometimes develops.

As an example, the case of a patient reported by Lardennois and Krivineis is quoted. Six weeks after a normal confinement, a woman twenty-five years of age had chills, followed by high fever and pains in various joints. After three days she was much better. Following an interval of a few days there was another attack characterized by chills, fever, pains in the joints, this attack lasting about a week when she improved. A short time thereafter there was another similar attack, more prolonged, and in the course of it there was evidence of osteomyelitis of the distal end of one radius. A drainage operation was done, and there was some improvement, but not long thereafter there was an abscess on the back of one of the hands.

At this time a survey of the mouth revealed a suppurative process about a wisdom tooth. The tooth was extracted, and the patient rapidly improved. LeRoy Long.

Allergy as an Explanation of Dehiscence of a Wound and Incisional Hernia. By J. William Hinton, M.D., Assistant Attending Surgeon, New York Post-Graduate Hospital; Associate Visiting Surgeon, Bellevue Hospital, New York. Archives of Surgery, August, 1936.

After referring to reports from many surgeons with reference to the circumstances in connection with the dehiscence, or separation of wounds, following celiotomy, the author says: "The foregoing reports convince one that the type of incision, the magnitude of the operation, the choice of the anesthetic or the type of closure plays only an insignificant part in dehiscence of the wound."

Attention is directed to the absence of infection in most of the cases of dehiscence of abdominal operative wounds. There is a reference to 725 cases reported by Sokoloff, in which only 15.7 per cent showed evidences of wound infection. This has been the experience of the reporter.

The reporter does not take the position that all cases of dehiscence are without infection. On the other hand, he distinctly indicates that dehiscence may be the result of infection. He puts this down as the first type. The second type is dehiscence without infection, "and with this type there are no other complications to account for the dehiscence."

Dehiscence is divided into three stages. In the first stage there is complete separation of the peritoneum and posterior sheath of the rectus abdominis muscle, with incomplete separation of the anterior sheath of the rectus. It has been observed that in such cases there is a slight serosanguineous discharge on from the fifth to the eighth day. The outer wound heals by primary union; the inner part is separated.

In stage two there is complete separation of the entire abdominal wound without protrusion of a viscus.

In stage three there is complete separation of the abdominal wound with protrusion of an abdominal discus.

Regardless of the stage, dehiscence of an abdominal operative wound is accompanied by a more or less free discharge of serosanguineous material.

Apparently taking into consideration the almost uniform practice of closing the abdomen in layers by the use of catgut sutures, and the oft-repeated observation that catgut is very rapidly absorbed in the case of certain individuals, the conclusion was reached by the author that the average case of dehiscence of an abdominal operative wound is due to an allergic situation in which the catgut is rapidly and prematurely digested. The author says: "There is a warning note by all authors as to the peculiar capacity of the tissues of some persons to digest catgut completely." He refers to Erdmann's employment of the term "tissue hunger."

Nineteen illustrative cases are reported, and in all of them the abdominal operative wound had been closed in layers by catgut, several silk worm gut sutures being employed at the same time.

The author now uses through-and-through sutures of heavy silk or dermal suture material, which are removed on from the eighth to the tenth day. He does not claim any originality. He refers to the use of it by Dr. Joseph Price over fifty years ago, it being continued by Dr. J. W. Kennedy, "and in their combined experience they have not had a single case of dehiscence of the wound or death from infection of a wound."

Summing up, the author says: "In view of the high percentage of cases of dehiscence of the wound, it seems that there must be some other factor or factors than the explanations usually given for dehiscence, such as the type of closure, the make of catgut, infections of the wound, type of incision, respiratory infection, general debility of the patient or the choice of anesthesia. For that reason it seems logical to assume that a certain percentage of patients might be considered allergic to catgut. It is only necessary to recall that one is relying on the protein of a sheep for keeping the tissues approximated."

COMMENT: As indicated by the author, one of the remarkable observations in connection with the dehiscence, or separation of an abdominal operative wound is not accompanied, in the average case, by any evidence of infection. There is a discharge of blood-tinged serum, more or less profuse. This is followed by separation of the wound.

One of the unfortunate features of the situation is that the surface of the abdomen may not give any clue to the actual situation at all, with the exception of the discharge of blood-tinged serum. At the same time, there may be separation on the inside, and a loop of intestine may become fixed in the abdominal wall. If there is at this time any unusual distress, the logical procedure is to deliberately open the wound and re-suture it. For many years our plan has been, when such an occasional case presented, to re-suture the abdominal wound by through-and-through silk worm gut or heavy silk sutures. One of the practical and striking observations has been that after such resuturing there would be satisfactory healing, without weakness or any evidence of incisional hernia.
LeRoy Long.

Serious Complications Following Neglected Cholelithiasis. Fred W. Bailey, M.D., St. Louis, M. Annals of Surgery, May, 1936. Page 781.

The author endeavors to emphasize two pertinent points. First, that symptomless gall bladder

pathology is a rarity. Second, that the infected gall bladder with gall stones is never cured by duodenal drainage nor by medical therapy. Within the past thirty-five years we have become aware that an infected gall bladder is a menace to health; that it does not spontaneously heal without residual pathology; promotes and fosters formation of stone, pericystic adhesions and liver dysfunction; and may be removed without detriment to health.

Early operation before hepatic function is disturbed obviously banishes most of the morbidity which surely follows neglect, such as cholangitis, chronic hepatitis, biliary obstruction, perforation, abscess, peritonitis, crippling adhesions, pancreatic disease and possibly cancer.

At no age in life are gall stones harmless, and a neglected case is always a menace to the well being of the carrier. Two hundred cases were reviewed, the ages ranging from twenty-eight to eighty-six, with symptoms of gall bladder disease present and active from five to sixty years. Periods of morbidity were variable and the complications were uniformly serious.

Each of these patients was of necessity subjected to a serious operation, long tedious hospitalization and subsequent morbidity out of all reasonable proportion to that which would have attended an earlier diagnosis and lowered surgical risk during the period of safety.

All of the two hundred cases reviewed gave positive evidence of varying periods of disabling symptoms; all of them ascribed their early disability to various forms of "dyspepsia," "indigestion," "nervous indigestion" and dietary indiscretions; most of them had been under a physician's care for a prolonged period; the majority had suffered actual biliary colic many times with transient jaundice, intestinal dysfunction and impaired health; among those who were diagnosed, frequent duodenal drainage and bile salts were the prescribed treatment. "Several resorted to the assuring care of the stone-dissolving charlatan, the osteopath, chiropractor or to Christian Science." "Our broader knowledge of the physiologic function of the liver and of its susceptibility to disease, our ability to detect pathology early and a constantly improving technic, should arm us with a more effective remedy, and yet our end result in treating hepatic disorder is not comparable to that of any other disease of which infection is the basic cause."

The seemingly innocent presence of gall stones may later account for (a) indigestion, mild or severe, but persistent; (b) obstruction of cystic or common duct, with disastrous sequelae, such as hydrops, empyema, gangrene, perforation and abscess; (c) recurrent infections transmitted to the liver, increasing dysfunction; (d) pain from insignificant soreness to intense colic; (e) jaundice, mild or severe, persistent or recurrent; (f) cholangeitis, pancreatitis, hemorrhagic or cystic, and cancer (from fifty per cent to seventy-five per cent of all cancers of the gall tract and pancreas show the presence of gall stones).

Gall bladder disease with gall stones is not a medical problem. Cholelithiasis is never actually relieved by the spontaneous passing of all resident stones through the natural channels. A definitely diseased gall bladder with gall stones is never cured "spontaneously" or by duodenal drainage or other medical therapeutic agents. Since this is a definitely surgical disease it should never be allowed to pass from the stage of a safe operative risk, on to the certain development of disastrous sequelae, without fully informing the patient of its potentialities. The infected gall bladder with stones is a definite surgical problem entitled to prompt surgical attention when diagnosis is certain and before irremedial liver, gall tract and pancreatic damage has been inflicted.

The authors conclusions are as follows:

1. From a review of two hundred gall bladder operations, more than fifty, or twenty-five per cent, were seriously complicated, requiring life endangering operations.

2. Infected gall bladder with stone is usually a progressive pathology, gradually merging from a simple to a serious surgical problem.

3. Persistent symptoms of indigestion, dyspepsia, flatulence or upper abdominal pain justify careful examination and observation. A diseased gall bladder seldom, if ever, entirely heals, and usually becomes a factory for stones and related complications.

4. Early or preventive surgery in a frankly surgical disease is a most potent factor for safety, and is quite as essential in gall bladder disease as in toxic goiter, appendicitis, or chronic intestinal obstruction.

LeRoy D. Long.

The Response of the Mammary Gland to Prolonged Stimulation with Ovarian Hormones. By Ian G. McDonald, M.D., Cornwall, N. Y. Surgery, Gynecology and Obstetrics, August, 1936, Page 138.

This is a study of the mammary gland changes produced in castrated rabbits by long periods of artificial stimulation with corpus luteum and estrin hormones. The author's conclusion follows:

"1. The continuous administration of the (ovarian) hormone estrin in castrated rabbits produced, at first, a generalized overgrowth and ramification of the ductal system in the mammary gland with practically no acinar growth.

"2. Carried further (one hundred days), little gross change occurs, but atypical histological variations appear in the ductal epithelium which often verge on the border line of neoplastic changes.

"3. When such stimulation is prolonged for six months or more, both the gross ductal growth and microscopic epithelial hyperplasia regress to a nearly resting state. Ductal widening is not prominent under pure estrin stimulation.

"4. In rabbits the response of the ductal system of the breast and its epithelium to continuous estrin stimulation is confined to certain limits, past which a refractory state is set up.

"5. Estrin and corpus luteum extract in combination produce both ductal and acinar overgrowth; early secretion occurs and the ducts become distended.

"6. Dilatation of the ducts is probably mechanical from distention by secretion, and not a specific effect of estrin.

"7. Estrin and progestin, on the basis of present evidence, do not produce specific pathological lesions, cystic disease and adenosis."

Wendell Long.

The Blood Loss During Normal Menstruation. By Adelaide P. Barker, Ph.D., and W. M. Fowler, M.D., Iowa City, Iowa. American Journal of Obstetrics and Gynecology, June, 1936, Page 979.

These authors found that a review of the literature revealed no uniformity of opinion as to what constitutes the blood loss during normal menstruation. They felt that in order to evaluate properly the significance of excessive menstrual bleeding as an etiological factor in certain types of anemia, it was essential to have definite information as to the amount of blood that is lost with each normal period.

This study was made of one hundred normal women ranging from fifteen to forty-three years of age, all in good health with what was considered normal menstruation.

The collected material was analyzed for iron. The menstrual blood iron was converted into grams of hemaglobin and this in turn into the equivalent amount of the individual's blood.

"The menstrual blood loss in 100 apparently normal women ranged from 6.55 cc. to 178.69 cc. with an average of 50.55 cc. Fifty per cent of these women lost between 23.21 cc. and 68..43 cc."

The duration of the period and the number of napkins used give only a vague idea of the amount of menstrual flow, according to this study. The statement of a patient that her menses are normal in amount means but little since this individual has no other standard except her own experience to determine the question of a normal menstruation.

From their study these authors conclude that continuous excessive iron loss, such as they experienced in these supposedly normal individuals, may account for certain cases of hypochromic anemia which have been considered as idiopathic in origin. They admit that this may not be the only etiological factor in all such cases but that it undoubtedly plays an important and frequently unrecognized role.

COMMENT: This is an interesting piece of work, well done, establishing certain averages for the amount of blood loss in the supposedly normal menstruation. It in turn reflects some doubt upon our usual means of clinically determining amount of blood loss by question as to the duration of the period, the number of napkins used, and the question as to whether the period was "normal" or not.

Wendell Long.

PLASTIC SURGERY

Edited by GEORGE H. KIMBALL, M.D., F.A.C.S.
204 North Robinson Avenue, Oklahoma City

Rhinophyma. Dr. Grant P. Pennoyer. Annals of Surgery, May, 1935.

The following is an exact copy of an article as it appeared in Annals of Surgery, May, 1935, Vol. 101:

I do not think that many general surgeons appreciate how easy it is to give a patient with rhinophyma a good cosmetic result. The disease is extremely disfiguring and it is surprising how the general morale of a patient is improved by restoring the natural appearance of his nose. It is true that the disease usually occurs in people of the lower strata of society where vanity is not greatly emphasized, but even in this group, these patients often take a new lease on life with the removal of their disfigurement.

The patient presented had a nose so large that he could not see his feet only with the greatest of difficulty and he had become a recluse, because as soon as he appeared on the streets he was ridiculed.

My interest in the disease was stimulated many years ago by seeing Dr. James White, Professor of Dermatology, operating on a huge rhinophyma in a back room, while loudly denouncing surgeons for not operating upon these cases in the manner in which he asked them to operate. Dr. White was not a surgeon. He simply whittled off the excess tissue exactly as one would whittle a stick. There was considerable hemorrhage which was entirely controlled by pressure with gauze sponges.

Dr. White showed me a large number of pictures of excellent end results in these cases, some going back for more than thirty years, and said that his predecessors had taught him to do the operation before that. Despite this convincing evidence, he was unable to persuade surgeons to take over the cases.

The operation consists simply of paring off the lobulations of diseased tissue so that the nose at the completion of the operation is of normal size, though apparently denuded of skin. Care must be taken not to enter the nostril or injure the nasal cartilages. An instrument can be placed in the nostril to appreciate the thickness of the tissue left, if one suspects that he is removing too much. Some arteries may have to be tied, but most of the hemorrhage can be controlled by pressure. I have been dressing them with rubber tissue, and it is amazing how rapidly the denuded area is epithelialized. The reason for this is obvious if one studies the microscopic sections. The excess tissue lies in lobules at the base of which remain islands of epithelial tissue which are left on the nose and from which the new epithelium rapidly grows. Healing is usually complete in less than three weeks. Areas of epithelial tissue are also scattered in the lobules themselves, so that it is almost impossible not to leave some epithelium on the nose, although it is not grossly apparent.

These patients all have thick acneform skin which, of course, is not cured by the operation, but the nose itself remains fairly normal and in our experience the condition does not tend to recur. Roentgen ray treatment, as far as the nose is concerned, has not been necessary.

Patients with this condition are almost all poor and totally unaware of the ease with which it may be corrected. They usually come to the hospital with some other complaint. The operation, therefore, has to be sold to them. I have never yet had a patient come to me first for the nose.

It is hoped that in presenting this patient the interest of the general surgeon may be stimulated regarding this condition so that he will voluntarily offer to relieve the unfortunate sufferers of this disfigurement.

COMMENT: One of the best ways to remove a rhinophyma is to use a sharp straight razor or a skin razor and literally pare the lobulation away from the supporting structure from the end of the nose. After the nose is pared to the size desired, apply tannic acid and allow epitheliazation to take place. The results are surprisingly good.

Herniorrhaphy Using a Living Fascial Flap. Robert P. Wadhams, M.D., and Victor Carabba, M.D., New York, N. Y. From Annals of Surgery, Vol. 101, No. 5.

The authors comment about the unsatisfactory results in inguinal herniorrhaphy. They describe an operation that they have used since 1929 especially in recurrent hernia or of primary hernia in which the usual procedures were not adequate. The authors use a strip of fascialata from the same side as the hernia operated on, leaving the superior end of the fascial strip attached. After a preliminary closing of the fascial structures of the hernia, the fascial flap is sutured in place above and below the cord at its exit from the internal abdominal ring to the inguinal ligament and pubic spine. If it is possible to attach the conjoined tendon at the same time, it is also included in the suture. Sometimes the upper border of the flap is attached to the rectus sheath.

COMMENT: There is no doubt that this operation is indicated in certain cases. I have personally never used it for the reason that I have always employed the fascial strip used on a needle and interwoven into the tissues and anchored with catgut sutures.

Treatment of Recurrent Incisional Hernia by Flaps of the Anterior Sheath of the Rectus. By Norman S. Rothchild, M.D., Philadelphia, Penn. Annals of Surgery, Vol. 101, No. 2.

The authors enumerate the factors concerned in the production of incisional hernia as follows: (1) Prolonged drainage of the peritoneal cavity; (2) extensive infection of the wound; (3) incomplete suturing of the peritoneum and the fascia, and the suturing of the fascia under undue tension.

Some cases of large herniae require special operations. Most every one is familiar with the operation outlined by Gallie, and LeMesurier. Also the method by Koontz and MacKenzie and Farr.

Gibson has treated these herniae by means of lateral incision of the anterior sheath of the rectus muscle, making it possible to approximate the margins without undue tension.

The procedure about to be described was done through a misunderstanding of the Gibson technic.

The first step of the operation consists of an adequate exposure of the sac of the hernia and the anterior sheaths of the right and left rectus muscles. The sac should be opened in all cases in which the contents cannot be reduced, which permits the severance of adhesions of the omentum to the sac, and the exploring of the upper abdomen. The sac is then excised and its edges sutured. where the contents of the sac are reducible, the sac may be reduced in size by the inversion method of Haynes, which consists of a series of sutures. The first is similar to the Connell stitch and inverts the central portion of the sac. The second suture included the external limit of the sac and the median margin of the anterior sheath of the rectus.

The second step consists in the clearing of the anterior sheath of the rectus of all adipose tissue. One then measures the longitudinal and transverse diameters of the hernial orifice. Markings are made on the anterior sheaths of the recti muscles to designate the length of the flaps desired. Markings are also made to designate the width of each flap, so that when the flaps are sutured together they will cover the hernial orifice without undue tension. Transverse incisions, above and below, are made in the sheath, and these transverse incisions are connected by longitudinal incisions. These lateral flaps are raised and hinged along their medial border. They are then sutured by a continuous stitch. The upper and lower edges are sutured by interrupted stitches to the remaining portion of the anterior sheath of the rectus. Redundant skin is removed, stab wounds are made at the lowest level and drains inserted at these points. The wound is then closed.

Where the hernia is the result of an upper right rectus incision the flap of the left rectus sheath will necessarily be larger than the flap obtained from the right side, while in hernia occurring in the midline, the flaps will be of the same size. It is exceedingly important to establish adequate drainage because of the extensive dissection of the skin and subcutaneous fat. In one of our cases, a large haemotoma developed despite the fact we had provided drainage.

COMMENT: Like other tissue shifting procedures this operation has a definite place for the large redundant abdominal wall with a centrally placed hernia.

While the technic described is very clear cut and practical, yet it is not entirely new in principal. A great many men have used this same idea simply by necessity, that is, finding a large widespread opening and being forced to go to the rectus sheath to close the defect.

The post-operative reaction of some of these cases is not at all good. Abdominal distension often plays havoc with the operation. Compression of the chest by closing the widespread opening of the abdominal wall often leads to pulmonary complications. A great many of these patients are not good surgical risks.

Heating of Human Tissues by Short Wave Diathermy

John S. Coulter and Howard A. Carter, Chicago (Journal A. M. A., June 13, 1936), studied the heating efficacy of short wave diathermy in living human fat and muscle of the thigh, employing, first, an electric field of 6, 12, 18, and 24 meter wavelengths, using the cuff electrode technic; secondly, an electromagnetic field of 12, 18 and 24 meter wavelengths, using the coil technic. There were no significane differences in the use of 6, 12, 18 and 24 meter wavelengths when using the cuff technic of the electric field method and no significant differences in the use of 12, 18 and 24 meter wavelengths when using the coil technic of the electromagnetic field method. A practical and social problem becoming more and more important is the interference of short wave diathermy energy with radio communications. Two remedies have been proposed: one is the allocation of a special wavelength band for therapeutic purposes and the other is the proper screening of short wave diathermy machines and equipment. If, in subsequent investigations, a single frequency was found to be satisfactory for all treatments, the oscillators would have to be stabilized so that deviation of no more than a kilocycle from this assigned frequency would ever occur. Short wave diathermy machines would have to be manufactured with a frequency stability corresponding to a good radio transmitter. If the second remedy should be adopted, radio-frequency filters or wave traps would have to be inserted in the power leads to prevent reradiation of the high frequency energy back into the power mains, and the treatment room would have to be screened and grounded. Because of the ever increasing need for radio communication channels, it would seem that the method of screening and line filtering takes precedence over the allocation of a wave band for therapeutic purposes.

The Feeding of Modified Gastric Juice in Pernicious Anemia

Fredric M. Hanes, O. C. Hansen-Pruss and J. W. Edwards, Durham, N. C. (Journal A. M. A., June 13, 1936), repeated Greenspon's experiment (of feeding pernicious anemia patients normal gastric juice so treated as to inhibit the action of pepsin), adhering strictly to his technic, in five typical untreated cases of pernicious anemia. Fifteen normally healthy medical students have acted as donors of gastric juice, which in every instance has been tested for the presence of free hydrochloric acid. Histamine (0.1 mg. per kilogram of body weight) alone was used to stimulate the flow of juice, and if there was evidence of food contamination the specimen was discarded. This method of treatment produced no subjective or objective improvement in the patient's condition. No evidence of increased erythropoiesis was observed, either in the bone marrow or in the circulating blood.

The International College of Surgeons—Why?

Into the welter of scientific, pseudoscientific, medical and similar organizations which now appeal for the physician's patronage comes the International College of Surgeons, promoted by none other than H. Lyons Hunt, who has already to his credit (sic) the Association of Medical Editors and Authors. The prospectus indicates that the purpose of the organization is to bring together in closer harmony the leaders of the various colleges of surgeons now in existence; yet there is not the slightest evidence that the colleges of surgeons in any country have indicated their willingness to be brought together by this new organization. Among the other objectives, the new "College" proposes to elevate the standards of surgery to a point at which international reciprocity may be realized; it is quite safe to say that international reciprocity in surgery must be a figment of the imagination for many generations to come. Apparently there will be a publicity department to keep the public informed as to what surgery can accomplish, prizes offered for research, a museum established in Geneva, a journal published and a building erected in Geneva, where the foreign promoter, A. Jentzer, resides. There are also to be annual meetings in the individual countries as well as a meeting every two years in Geneva. Finally, there will be three classes of members, notably members, fellows and masters, who will be entitled to place after their names the appropriate alphabetic insignia. The fellows are to selected by election, appointment or examination. Apparently the first comers are all being appointed, but by whom and under what authority the prospectus sayeth not. Notwithstanding the obviously inflational character of this prospectus and the complete lack of any authenticated background for this proposed organization, a considerable number of American physicians have felt themselves highly honored by the receipt of the invitation and are already taking steps to extend the appendix to their names by the additional letters which they will purchase through this international college. There exists already an international surgical organization of standing and repute. No doubt an invitation to membership in this organization would be a considerable honor and well worthy of consideration by any competent surgeon. An invitation to membership in the

Report of Licenses Granted to Practice Medicine

NAME	Year of Birth	Place of Birth	School of Graduation	Year of Graduation	ADDRESS
Ghormley, James Grant	1901	Kansas City, Mo.	University of Okla.	1934	Blackwell, Okla.
Standifer, Lilburn Echols	1895	Tulia, Texas	Tulane University	1925	Oklahoma City, Okla.
Gardiner, Howard Glenn	1910	Geary, Oklahoma	Oklahoma University	1935	Chicago, Ill.
Prentiss, Harley Merton	1892	Melamora, Ohio	Oklahoma University	1918	Nowata, Okla.
Bell, Austin Holloway	1904	Hopkinsville, Ky.	Vanderbilt University	1929	Oklahoma City, Okla.
Haslam, Gilbert Earle	1900	Piedmont, Ala.	Emory University	1924	Anadarko, Okla.
Hoos, Bessie E. Mayo (F)	1898	Lockhart, Texas	Baylor University	1923	Oklahoma City, Okla.
Joss, William Irving	1871	Fairview, Kans.	Hahnemann College	1906	Erick, Okla.
Klotz, Wm. Friedrick	1907	Memphis, Tenn.	University of Tenn.	1931	McAlester, Okla.
Mills, Charles Kelley	1901	Boonville, Ind.	Indiana University	1926	McAlester, Okla.
Munal, John Edward	1905	Memphis, Tenn.	University of Tenn.	1928	Holdenville, Okla.
Nealon, Jas. Kenneth	1903	Pittsburgh, Pa.	Ohio State University	1930	Elk City, Okla.
Russell, Allen Rutledge	1900	Hot Springs, Ark.	University of Ark.	1929	McAlester, Okla.
Simon, Bettie Harris (F)	1907	Webster Groves, Mo.	Washington Univ.	1930	Oklahoma City, Okla.
Werling, Edmund Henry	1906	Humboldt, Texas	Washington, Univ.	1930	Pryor, Okla.
Border, Clinton L.	1903	Louisa, Ky.	Univ. of Louisville	1929	Mangum, Okla.
Skemp, Frank Scofield	1884	Minneapolis, Minn.	University of Minn.	1909	Talihina, Okla.
Barnes, Harry E.	1910	Oklahoma City, Okla.	University of Okla.	1935	Oklahoma City, Okla.
Bigler, Earl E.	1906	Bismarck, N. D.	Northwestern Univ.	1934	Claremore, Okla.
Blinde, Oscar J.	1907	Johnson, Neb.	Oklahoma Univ.	1935	Seattle, Washington
Kirby, Lester Richard	1907	Gebo, Montana	University of Colo.	1934	Okeene, Okla.
Cooper, John William	1904	Corrollton, Mo.	Washington Univ.	1931	Oklahoma City, Okla.
Yates, June	1908	Grapevine, Texas	Baylor University	1933	Ada, Okla.
Anderson, Paul Sanford	1908	Oklahoma City, Okla.	Oklahoma University	1935	Claremore, Okla.
Buffington, Fred Courtney	1911	Houston, Texas	Oklahoma University	1935	Norman, Okla.
Cunningham, Curtis B.	1905	Custer City, Okla.	Oklahoma University	1935	Oklahoma City, Okla.
Cowling, Robert Emmett	1901	Abbott, Ark.	Oklahoma University	1935	Oklahoma City, Okla.
Johnson, L. G.	1907	Little Rock, Ark.	Oklahoma University	1935	Oklahoma City, Okla.
McPike, Lloyd H.	1903	Condo, N. D.	Oklahoma University	1935	Sand Springs, Okla.
Beaty, C. Sam	1905	Laverne, Okla.	Oklahoma University	1935	Oklahoma City, Okla.
Bozalis, George S.	1910	Nashville, Tenn.	Oklahoma University	1935	St. Louis, Mo.
Harmon, Thos. F.	1912	Sallisaw, Okla.	Oklahoma University	1935	Sallisaw, Okla.
Petty, James Sturges	1909	Guthrie, Okla.	Oklahoma University	1935	Guthrie, Okla.
Plummer, Thos. Orlando	1907	Shelby, Ohio	Oklahoma University	1935	Denver, Colorado
Mayfield, Hugh Jean	1908	Eldorado, Ark.	Tulane University	1935	Eldorado, Arkansas
Cotton, William W.	1907	Sallisaw, Okla.	Oklahoma University	1935	Walters, Okla.
Brown, Harwin Joseph	1909	——, Wisconsin	University of Wis.	1935	Oklahoma City, Okla.
Gustche, Paul W.	1906	New York, N. Y.	University of Okla.	1935	Oklahoma City, Okla.
Deputy, Ross	1907	Oklahoma City, Okla.	University of Okla.	1935	Clinton, Okla.
Haygood, Chas. Wendell	1909	Hanley, Texas	University of Okla.	1935	Oklahoma City, Okla.
Weedn, Alton James	1907	Sasakwa, Okla.	University of Okla.	1935	Duncan, Okla.
Barker, Clyde J., Jr.	1911	Kaw, Okla.	University of Okla.	1935	Phoenix, Arizona
Murphy, Weldon Odell	1912	Tipton, Okla.	University of Okla.	1935	Oklahoma City, Okla.
Turabow W. Ray	1908	Drumright, Okla.	University of Okla.	1935	Tulsa, Okla.
Vinson, Harold Augustus	1909	Alva, Okla.	University of Okla.	1935	Denver, Colorado
Davis John R.	1906	Granite, Okla.	University of Okla.	1935	Fresno, California
Ensign, Paul R.	1906	China	University of Okla.	1935	Kansas City, Mo.
Crick, Lloyd Eay	1891	Preston, Kans.	University of Okla.	1934	Britton, Okla.
Clark, Issac F.	1881	——, Tenn.	Los Angeles College P. & S.	1912	Kansas City, Mo.
Bell, Jas. Thomas	1911	Welch, Okla.	Oklahoma University	1935	Welch, Okla.
Coley, Joe Henry	1907	Alexander City, Ala.	Jefferson Med. Col.	1934	Oklahoma City, Okla.
Cushman, Harry R.	1911	Colo. Springs, Colo.	University of Okla.	1935	Clinton, Okla.
Gallaher, Paul C.	1911	Shawnee, Okla.	Northwestern Univ.	1936	Shawnee, Okla.
Taylor, Jim Mabury	1911	Spencer, Okla	University of Mich.	1935	Oklahoma City, Okla.
Watson, I. Newton	1908	Guymon, Okla.	University of Okla.	1935	Oklahoma City, Okla.
Elkin, Wm. Paul	1906	Edmond, Okla.	University of Okla.	1935	Washington, D. C.
Garnier, Wm. Hampton	1910	Weleetka, Okla.	University of Okla.	1935	Oklahoma City, Okla.
Holtz, Harvey Everett	1907	Akron, Kans.	University of Okla.	1934	Iowa City, Iowa

present promotion might be considered more of an insult to the intelligence of the recipient than a recognition of extraordinary qualifications. One need not cast aspersions on the intelligence of the promoters. As psychologists they seem to have a fine insight into the weakness and folly of the average man, who likes to adorn himself in regalia and to adorn his cognomen with assorted alphabetic conglomerations.—Journal A. M. A., June 20, 1936.

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Osteomyelitis of the Inferior Surface of the Petrous Pyramid

Wells P. Eagleton, Newark, N. J. (Journal A. M. A., Aug. 15, 1936), points out that our knowledge of infections of the petrous apex is still very primitive. Like mastoiditis and Bright's disease, apicitis is a generic term, covering a large number of different pathologic states, the symptoms of which are modified by the surrounding parts. The differentiation of the exact pathologic lesion present is of the highest surgical importance, as any ill directed surgery on the delicate endothelial blood vessels making up the sinusoidal spaces of the apex, which are the site of suppuration, only too frequently precipitates the very lesion that one is attempting to prevent, converting a local sinusoidal osteomyelitis into an invasive infection of the blood vessels, which rapidly spreads into the vessels of the meninges and cerebral tissues, causing either a fulminating meningitis or an infective meningo-encephalitis. Thus each variety of pero-apicitis requires clinical differentiation because the specific line of treatment to be adopted depends not only on the nature of this lesion but on its anatomic position in the bone, if one is to prevent the development of a complicating, generalized septic meningitis, which is the cause of practically all fatalities from apical infections. The author discusses the petrous apex from a pathological and surgical point of view, pointing out that it is divisible into three domains and then discussing the various surgical lesions. He stresses that in every case of apical suppuration the lateral pharyngeal wall should be inspected frequently, as a perforating abscess from caries of the base gives few or no symptoms. Osteomyelitis from aural suppuration limited to the petrous base below the carotid and the region of the petro-occipital articulation is a distinct entity. It can be diagnosed before the advent of meningitis, which is inevitable unless the suppuration "eats" through the thick bone of the base and discharges into the lateropharyngeal roof, or unless the bone is surgically perforated. Out of about fifty verified cases of suppuration within the petrous apex, the author had six cases of osteomyelitis below the carotid, so the condition is far from infrequent. Of the six, only three caused a demonstrable fluctuating swelling in the pharynx. The other three cases presented large collections of pus below the carotid artery inaccessible to any operative approach from the aural region but probably curable by bolding perforating the bone of the petrous apex in the lateral pharyngeal roof mesial and slightly posterior to the eustachian tube.

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Athletic Injuries

Marcus H. Hobart, Evanston, Ill. (Joural A. M. A., Aug. 15, 1936), demonstrates that owing to the present widespread interest in athletics, the study and care of athletic injuries is forcing itself more and more on the attention of the medical profession. The physician should be in full control of the physical side of the team, as the head coach is in charge of the athletic side. They should work together. Under the doctor and the coach there should be trainers, masseurs and physical therapists whose duty it is to keep the men in condition, but any special treatment should be prescribed by the doctor and supervised by him. Complete harmony should exist between all those in charge. All athletes should have a physical examination at least each season. The heart, pulse and lungs should be checked over, examination made for hernias, and any other abnormalities noted. There should have been a recent successful vaccination against smallpox. All injuries should be reported immediately to the team physician. Athletic injuries demand special consideration by the medical profession as they are in a class by themselves. It is necessary for an athlete to obtain quick but none the less complete cure. Certain advances have been made in the treatment of specific athletic injuries. This review includes twelve years' surgical experience in handling athletic injuries at Northwestern University. Detailed statistics cover a five year period (1930-1934) during this time. In treating or coaching athletes it should always be borne in mind that all serious or permanent disabilities should be prevented and that the individual should come first and athletics is purely secondary.

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NOTE—Corrections and additions to the above list will be cheerfully accepted.